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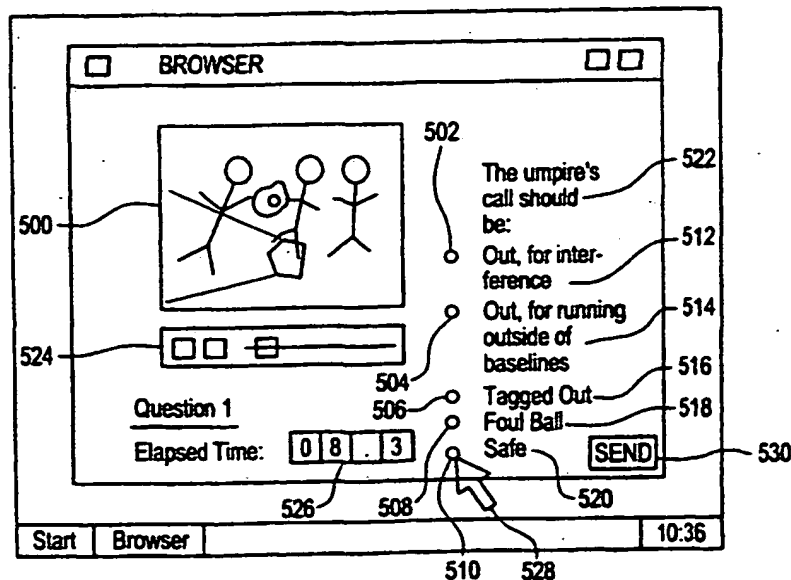
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(54) Title: METHOD FOR MULTIPLAYER SPORTS TRIVIA GAME



(57) Abstract: A method for using a widely distributed network with appreciable time delays for playing a sports trivia game in which participants compete on the basis of both correctness of answers and speed of response. When a sports trivia game is played, the clip (500) starts and a question (522) is presented. Each participant answers the question in a respective answer times. The participant's answers and the respective answer times are communicated to a server that analyzes the answers and time based upon selected criteria of correctness and speed of response. Results of the analysis are transmitted back to the participants over the network.

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METHOD FOR MULTIPLAYER SPORTS TRIVIA GAME

Background of the Invention

This invention relates to methods for implementing and playing a computer-based game, and more specifically to a method for using a widely distributed computer
5 network, such as the Internet, for playing a multiplayer sports trivia game in which both speed of response and correctness of answers are used as bases for competition.

Many people enjoy the competition of trivia games. Many board games, such as the well-known "Trivial
10 Pursuit," have been successfully marketed to take advantage of this fact. Even before "Trivial Pursuit," many popular radio and TV game shows were developed in which knowledge of various types of trivia was rewarded. In some of these shows, the ability to answer questions
15 before other competitors was necessary to win. In one

early TV show, contestants literally ran across the stage to be the first to ring a bell, for which they were rewarded by being given the opportunity to answer a question. In other shows, electronic devices were used to "lock out" all but the first contestant who signified his willingness to answer a question.

In "Jeopardy," perhaps the best-known of TV trivia game shows, contestants are in the same room. When contestants press a button to signify their readiness to provide a question appropriate for an answer supplied by the game show host (a gimmick that distinguishes "Jeopardy" from other game shows), the electronic response is clearly immediate. The first contestant pressing a button at his or her podium to signal a readiness to respond immediately produces an audio and visual signal alerting the host to call on that contestant for a response. The other contestants appear to be "locked out," in that they appear to be unable to produce the readiness signal by pushing their buttons until after either the first contestant has given an incorrect response or a new response is solicited from all contestants.

Sports trivia entertainment is also popular. For example, in a series of former television commercials entitled "You Make The Call," a replay of a portion of a professional football game was shown, and the viewer was asked what he or she would have decided if required to make a decision as a referee in the situation presented. Because these commercials were broadcast for viewing entertainment only, answers were not provided back to the broadcaster and viewers or listeners in different locations did not compete with one another to be the first to provide the right answer.

Variations of the "You Make The Call" program have been observed at live sporting events. At baseball games in St. Louis, for example, a large video display board and public address system is occasionally used to present a (possibly animated) video clip of a baseball play. The game is played with a contestant selected from the crowd. After the question is posed, the contestant is shown several possible answers on the video display board, and is asked to select an answer. A prize may be awarded to the contestant, depending upon the correctness of the answer he or she supplies. There is no competition between multiple contestants in this game and no time limit is provided for selecting an answer.

Certain "real-time" games that require or take useful advantage of an Internet connection are also known. These games are based upon subject matter disclosed in U.S. Patent No. 5,841,980 to Waters et al., entitled "Distributed system for communication networks in multi-user applications," which is herein incorporated by reference in its entirety. The Waters et al. patent is directed to a system for overcoming bandwidth limitations of network backbones to allow for national participation in multi-user applications across a large-scale network. RTIME Inc. is a company that produces the RTIME INTERACTIVE NETWORKING ENGINE™, an interactive networking engine based upon this patent that allows game developers and publishers to rapidly build or port multiplayer games to run over the Internet. Examples of fast-action, multiplayer games implemented in this manner are BATTLECRUISER 3020AD™, "RTIME Rocks!", "Turok 2: Seeds of Evil For The PC," "SpecOps: Rangers Lead the Way," and "PARAWORLD." Each of these games generate fanciful worlds in which players engage in combat, trade,

and/or exploration. However, none of these games are known to show clips from actual or simulated sporting events or to pose questions related to such events.

RTIME's networking software is said to be derived from the SIMNET project for the United States Government. This project involved combat training simulation and was used to train U.S. troops through interactive battle simulations. Thus, it is not surprising that games currently known to use this type of networking technology are interactive battle simulation games.

There is no known game played on a distributed network having appreciable differential time delays in which an audiovisual clip and at least one question pertaining to the audiovisual clip having a verifiable answer are distributed to participants via the distributed network, the presentations of the video clip and the at least one question to each of the participants are synchronized, responses of the participants received via the distributed network are analyzed with respect to both speed and correctness criteria, and results of the analysis are distributed to the participants.

BRIEF DESCRIPTION OF THE INVENTION

There is therefore provided, in accordance with one aspect of the invention, a method of using a distributed network that provides electronic data communication to a plurality of remote terminals, the method comprising: transmitting an audiovisual clip and a question related to the clip to each of a plurality of terminals; coordinating a time of playing back of the audiovisual clip at the plurality of terminals; receiving, from at least some of the plurality of terminals, a response to the question and data indicative of time elapsed prior to the response being entered; analyzing the responses and

the data received in accordance with predetermined correctness and speed criteria; and transmitting, to at least some (but preferably all) of the plurality of terminals, results of the analysis. The audiovisual clip
5 may comprise either audio or video information, or both, to be played back at each terminal operated by a participant. It is understood that a "terminal" as used herein, may refer to any device, including wireless devices, useful for communication over the computer
10 network and capable of performing the needed interactions with the network and a participant. Such devices may include personal computers, for example. Further in accordance with this aspect of the invention, the audiovisual clip may be a recording of a play that
15 occurred in a sporting event, and the coordination step may comprise coordinating a display of the question and a multiple choice list of possible answers. Local control of playback of the audiovisual clip may be disabled until after the audiovisual clip has completely played back at
20 a coordinated time. One or more host participants may set different starting times for different sessions, and individual participants may select a session to join.

In accordance with another aspect of the invention, there is provided a method of using a distributed
25 network, the network providing electronic data communication with variable time delays to remote terminals, the method comprising: providing a web site accessible to the remote terminals; logging in a first one of the remote terminals to the web site to initiate a
30 playing session; setting a global start time for the playing session; logging into the playing session at least one other of the remote terminals; transmitting synchronizing pulses to each logged-in terminal;

transmitting a question pertaining to the audiovisual clip to each of the logged-in terminals; receiving answers transmitted to the web site from the logged-in terminals; and transmitting, to the logged-in terminals, an indication of those terminals at which a correct answer was most rapidly provided.

In accordance with yet another aspect of the invention, there is provided a method of using a distributed network, the network providing electronic data communication with variable time delays to remote terminals, the method comprising: providing a web site accessible via the distributed network to the remote terminals; selecting a group of remote terminals for a playing session; transmitting via the distributed network, from the web site to each of the terminals selected for the playing session, an audiovisual clip, a question relating to the audiovisual clip, and a synchronizing signal so that the audiovisual clip and the question are each displayed at each of the terminals selected for the playing session at synchronized times; receiving, from at least one of the remote terminals selected for the playing session, answers to the question relating to the audiovisual clip and, in conjunction therewith, indications of elapsed time, relative to the synchronized time, at which answers were entered into the remote terminals; analyzing the received answers and their associated indications of elapsed time in accordance with correctness and timeliness criteria; and transmitting an indication of the correctness and timeliness of selected ones of the received answers to the terminals selected for the playing session.

In accordance with yet another aspect of the invention, there is provided a method of using a

distributed network, the network providing data communication with variable time delays to remote terminals, the method comprising: establishing a consistent synchronized time base at a plurality of remote terminals, the plurality of remote terminals thereby constituting a session; distributing, via the distributed network to the remote terminals in the session, an audiovisual clip and a question related to the audiovisual clip that is displayed on the terminals in the session in accordance with the synchronized time base; receiving, via the distributed network from the terminals in the session, a set of responses to the question and corresponding indications of elapsed time for response entry relative to the synchronized time base; analyzing a set of responses and corresponding indications of elapsed time in accordance with preselected criteria including timeliness criteria; and distributing, via the distributed network, results of the analyzing step. Further in accordance with this aspect of the invention, the audiovisual clip may be a video recording of a refereed sporting event, and the clip may be a recording of a play up to, but not including, a call of a referee. The question preferably relates to the call of the referee, so that participants may compete with each other to guess the correct call in the shortest possible time. Because the call may be checked by reference to the rules of the sport, the answers are independently verifiable. Preferably, an answer and a corresponding indication of elapsed time are received from each of a plurality of terminals in the session, and the analyzing step comprises ranking of correct answers in order of elapsed time.

In yet another aspect of the invention, there is provided a method of playing a computer game, comprising: asking a plurality of players a question; receiving answers to the question from the plurality of players; 5 and scoring the players in accordance with criteria relating to both speed and correctness of the answers. The method preferably includes the additional step of presenting an audiovisual clip representing a play of a sporting event to the plurality of players, and the 10 question preferably relates to the play represented in the clip. In accordance with this aspect of the invention, the game need not be played on a computer network.

It is thus an object of the invention to provide a 15 method for using a distributed network in a manner that allows a game or other competitive activity to take place with fair and consistent timing of correct answers provided by the participants.

It is another object of the invention to provide a 20 method for using a distributed network in the playing of a sports trivia game.

It is yet another object of the invention to provide a method for using a distributed network in which a plurality of participants may compete at a time selected 25 by a host participant.

It is still another object of the invention to provide a method for using a distributed network that 30 coordinates a timed game, preferably a sports trivia game, to be synchronized with a broadcast announcement or advertisement.

It is yet an additional object of the invention to provide a method of playing a game on a wide area computer network with appreciable delays that permits

scoring of both the relative speed and accuracy of answers to questions presented via the network.

It is yet another object of the invention to provide a sports trivia game that need not be played over a large computer network, and that is suitable to playing on a
5 single computer or video game, or on a relatively small computer network.

It is yet another object of the invention to provide a game for a plurality of players that is scored on the
10 basis of both the speed and the correctness of the answers given.

It will be observed that certain embodiments of the invention may achieve one or more of the above objects or other objects that will become apparent below without
15 necessarily achieving all of them. Such embodiments are also to be considered within the scope of the invention insofar as they are claimed herein.

The manner in which these and other objects of the invention are achieved will become apparent to one
20 skilled in the art upon studying the drawings and the accompanying description of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a simplified schematic representation of a large, distributed computer network on which the game may
25 be played in accordance with the invention;

Fig. 2 is a simplified schematic representation of a portion of the large computer network of Fig. 1, showing a group of terminals connected to a network node;

Fig. 3 is a representation of a computer screen
30 displaying an exemplary embodiment of an opening screen of the game;

Fig. 4 is a representation of a computer screen displaying an exemplary web page transmitted to

participants of a session at the start of a game in accordance with the invention;

Fig. 5 is a representation of a computer screen displaying an exemplary web page transmitted to participants prior to the global start time of a game in accordance with the invention;

Fig. 6 is a representation of a computer screen displaying an exemplary web page transmitted to participants during a game showing an audiovisual clip being displayed along with a question concerning the clip;

Fig. 7 is a representation of a computer screen displaying an exemplary web page transmitted to a particular participant after an answer to the question in Fig. 6 is transmitted by that participant to the game's web server in accordance with the invention; and

Fig. 8 is a representation of a computer screen displaying an exemplary web page transmitted to the particular participant at the end of a game in accordance with the invention.

DETAILED DESCRIPTION OF THE INVENTION

Fig. 1 is a simplified schematic illustration of a large distributed computer network 100 on which an embodiment of the inventive game may be played. Network 100 is preferably the Internet, although the invention may also utilize any other network having a synchronized time base or capable of locally providing a simulated synchronized time base. (It is also possible to implement the game on a single computer or on a local network or any other network in which communication delays are insignificant. In such cases, no synchronized time base is required.) The simplified Internet network topology represented in Fig. 1 is not intended to

represent a critical feature of the embodiment of the invention described herein. A number of computers 102, 104, 106, 108, 110, 112, and 114 are connected and in electronic communication with one another over network 100. Other computers, terminals, and even other networks may be connected to the computers represented in Fig. 1, as illustrated in Fig. 2. In Fig. 2, computer 110, which is in communication with network 100, is shown to also be in communication with devices 110-1, 110-2, ... 110-N, where N is an arbitrary number. These devices could be terminals, computers, or computer networks. For discussion purposes, let us assume that devices 110-1, 110-2, etc., and the devices attached to computer 110 (and other devices similarly attached to the other numbered computers 102, 104, etc.) for purposes of playing the inventive game are personal computers (PCs) or any other devices capable of providing a web browser function. At least one of the devices attached to the numbered computers 102, 104, etc. will be a web server to provide web pages to the PCs. In general, if network 100 is the Internet, only a small part of the communication taking place over the network will involve the inventive game, and only a limited number of devices communicating on the Internet will be computers actively involved with the game, either as servers or clients. Let us assume, however, for discussion purposes that each computer designated by "-1" (e.g., 100-1) represents a server for the inventive game and each other computer designated by -2, ... -N (e.g., 100-2) represents a personal computer with a browser that is or that may become involved in playing the inventive game. (Games for smaller networks or single computers will be considered separately below.)

Let us consider a game in accordance with the invention that provides ten audiovisual clips, each clip having one associated question and five multiple choice selections from which to choose an answer. It is not required, however, that each clip be associated with only one question, that each question have the same number of multiple choice selections from which to choose an answer, or that any or all of the questions be presented in multiple choice format. Of course, the number of clips presented in a single game need not be ten, as any number of clips may be used in a game.

The audiovisual clips may be stored in any file format that permits downloading and display by a web browser, such as INTERNET EXPLORER or NETSCAPE NAVIGATOR. Other browsers or programs having equivalent functionality may be used, but optimization for presentation on either or both of these browsers may be desirable at present to obtain the widest possible pool of potential participants.

The first participant accesses one or more introductory web pages on a game server. An exemplary web start page 200 is shown in Fig. 3 as it might be displayed on the screen of a typical home computer. This illustration is somewhat simplified, as the display may vary somewhat, depending upon the operating system and web browsing software in use. Web page 200 preferably registers the participant so that he or she may be scored and ranked against the other participants. Optionally, before allowing participants to play the game, the registration process may require the participants to enter demographic or personal information about themselves either on the opening page 200 or on a subsequent page (not shown). The web site may also

provide advertising displays 210, 212 containing advertising content and/or providing links to other web sites, as is known in the art. Similar advertising displays may optionally appear on any of the web pages of the game, and may optionally be integrated into the audiovisual clips and their associated questions and answers. However, no further reference to such displays will be made in this explanation.

A participant may be allowed to select a game session that has already been started or start a new session. Game sessions may be started either by the web server itself or by a "host" participant, or by both, in accordance with the invention. In an exemplary embodiment of the invention, the web server communicating with the participant's client computer maintains a database of session names that may be joined and provides these names as a selection list 202 to participants. Typically, a participant may select a name from the list 202 with a mouse cursor 204 and confirm the selection by moving the cursor to the "OK" button 206 and clicking on this button. As an alternative, a participant might choose to start his or her own session by clicking on button 208. If a potential participant does not understand the rules of the game, or what is requested of him or her, a help button or link 214 is preferably provided to display a page of instructions (not shown). Help may be provided in a pop-up window or it may simply display in the same window as the opening screen. In the latter case, it would be desirable to provide a link back to the web page displayed from which the participant transmitted the help request.

It should be observed that additional information could be requested of a participant for identification,

demographic collection, or other commercial purposes. Such additional information could be collected on the starting web page 200 or on a subsequent web page (not shown). Optionally, supplying such additional information may be made a prerequisite for allowing a participant to play the game. Also optionally, the name or other identification of the participant may be added to a database. Game participants may be uniquely identified in other ways by a web server, such as by their Internet IP addresses. However, participants may prefer being identified by a more user-friendly way, such as by name of their own choosing, even if the name selected does not happen to be their first choice. A database of names and session collected by the web server would allow it to transmit a request for a second choice if a participant's submitted identification were not unique, at least within the game session that he or she has joined.

A necessary feature of the game is that a global start time be selected. When a host participant selects the "start a new session" option 208 of Fig. 3 in this exemplary embodiment, the web server transmits to that participant the web page 300 shown in Fig. 4. The global start time is preferably set by a host participant. In the exemplary embodiment, the host participant selects a session name (which should be verified by the web server as not already in use as the name of another active or pending game session) and enters it into entry window 302 of web page 300. The host participant also sets a global start time, which is then used to synchronize all of the participants' audiovisual playback, question presentation, and answer timing for the game. In the exemplary embodiment, the global start time may be

entered as a time relative to the present in entry window 304, or a specific clock time at entry windows 306 and 308. An indication of AM or PM is preferably set by selection of one of the mutually exclusive selections 5 310, 312. If the host participant is satisfied with the entries in web page 300, he or she may transmit them by clicking on the "OK" button 314. The participant is also preferably given a chance to reconsider joining an already established session by clicking on the "go back" 10 button 316, which may simply return the participant to web page 200. If the host participant does select the OK button 314, the reasonableness of the start time may be verified by the web server. For example, the web server could optionally be programmed to reject start times more 15 than some predetermined interval in the future, such as 24 hours. In such a case, the host participant could be prompted to enter a more reasonable start time. The start time should also be required to be set sufficiently in advance so that the network synchronizing system is 20 able to accommodate all expected network delays. The required minimum delay may be different for different networks. (For the Internet, it has empirically been determined that two minutes in advance is usually sufficient, although it may be necessary to determine 25 this value empirically as the evolution and growth of the Internet continues.) In the exemplary embodiment, no other participant logging into the game session is permitted to change the start time, which becomes the basis of the start time for all participants. However, 30 the web server might be configured to relax this rule under certain conditions or at the discretion of the game's sponsor.

Session start times may alternately be preprogrammed at the web server. The web server may provide for global start times of games at hourly or half-hourly intervals, for example, or at other times. A global start time
5 could be coordinated with the appearance of a commercial on television or radio, so that the commercial may be used to entice viewers or listeners to log into a game. Such coordination may be useful for promotion of a broadcast event, such as a sporting event or to reinforce
10 the advertising message of a sponsor of that event.

Synchronization of start times may be provided by a system such as that described in the Waters et al., patent mentioned supra. This software, which is provided by RTIME, Inc. of Seattle, WA, may be used to synchronize
15 the starting of videos across all web browsers and across various Internet connections. Although there can be unusual conditions on the Internet that may, from time to time, cause discrepancies in the synchronized timebase, global time is normally coordinated sufficiently
20 accurately by this software for purposes of this invention. Generally speaking, the system of Waters et al. requires the use of multiple web servers that service clients that are nearby (in the networking sense), with communication occurring only as required between the
25 multiple web servers. However, the system is arranged so that, from the point of view of each participant, only a single web server appears to be involved. The use of the singular term "web server" in this explanation is, in part, due to the adoption of this point of view for much
30 of the description of this embodiment of the invention. In other embodiments of the invention played on a local network, on a single computer, or on any other computing system or network in which network communication delays

are negligible, synchronization software would not be required.

Participants may be added to a game up to a number and until a time set at the discretion of the game's sponsor (or optionally, by the participants, particularly the host participant) and enforced by the web server. Referring to Fig. 5, a countdown display 400 is preferably provided to participants before the start of the game. This countdown timer may show the amount of time before the next game clip appears. During this time, the web server may provide additional web pages 402 or audiovisual material to be displayed on participants' web browsers. Such material may be selected to maintain the interest of the participants, or to present advertising material, or both.

Meanwhile, as illustrated in Fig. 6, the web server (or a coordinated group of web servers each servicing a number of participants) sends an audiovisual clip 500 (which may include moving video, sound, or both) to each participants' web browser. The software controls the timing of the clip so that all of the browsers display the clip at the coordinated start time. The clip will be resident on the remote clients' disks, and may be in the well-known "AVI" format, so that they are playable in a standard commercial browser interface, such as the MEDIAPLAYER™ or NETSHOW® interfaces. Preferably, selection "buttons" 502, 504, 506, 508, 510 corresponding to each of the possible answers 512, 514, 516, 518, 520 to a question 522 about clip 500 will be displayed next to the audiovisual clip window. Also, preferably, replay (i.e., restarting on demand) of the clip (such as provided by controls 524) will be disabled until the final frame has been displayed to each of the participants (and,

optionally, thereafter). This will allow playback to be synchronized to ensure that each participant receives identical information at the same rate during the coordinated presentation period. During the display of the clip, an elapsed time display 526 is preferably also displayed on each participant's web browser display. The elapsed time is derived from synchronization pulses provided by the synchronization software. To ensure that all clients start their video at precisely the same time, within some margin of error (e.g., about 200 milliseconds), an ActiveX[®] control or functional equipment may be integrated into the global time base.

Preferably only after an audiovisual clip 500 is displayed, or optionally, during the clip, a question 502 is displayed and each participant is given the opportunity to select and transmit an answer to the question. For simplicity, a selection of multiple choice answers 512, 514, 516, 518, 520 are preferably provided, but any other form of answer that can be transmitted by the participants' web browsers may also be used in conjunction with the invention. Preferably, the correct answer would be verifiable by reference to the clip and to the official rules for the sport to which the question pertains. The elapsed time counter 526, in conjunction with the synchronization pulses, provides an indication of the time that has elapsed from some global reference, such as the beginning of the playback of clip 500, or the instant question 522 was displayed. This indication is transmitted back to the web site along with the selected answer to the question. The elapsed time transmitted to the web server may indicate either the time elapsed from the global reference time until the participant selected the answer, or the time the participant confirmed the

choice. The latter would be appropriate if, for example, separate confirmation (such as by clicking cursor 528 on button 530) is required to indicate that the selected answer is the one that the participant wishes to transmit
5 back to the web server. It is necessary that the elapsed time be measured consistently so that the game can be scored fairly. A browser applet may be provided to each client to impose a time limit for providing a correct answer. If the time limit is exceeded, that participant
10 may be considered as not having supplied a correct answer. Participants may optionally be given more than one chance to select a correct answer, in which case, they must be notified when they have selected an incorrect answer. Server synchronization pulses may be
15 sent to each participant's terminal before and during the game to ensure that local times are consistent at initialization, and remain consistent up to and during the game.

When all of the answers reach the web site for
20 analysis, the server analyzes the answers for correctness and the elapsed times that are provided with the answers. After this analysis is complete, the server then transmits to each participant a web page 600, such as illustrated in Fig. 7, that contains the answer 602 to
25 question 522 and information 604, 606, 608, 610, 612, 614 pertaining to participants whose answers meet certain criteria relating to correctness and speed of response. For example, the following compilation may appear in order:

30 1. The correct answer 602, which may also include editorial comment 616 that expands or explains the answer;

2. One or more participants 604 who submitted the fastest first correct choice answers, i.e., the participant or participants who chose the correct answer on the first attempt, along with a rating 610, in accordance with some predetermined criteria including correctness and speed, to compare their score to that of other participants;

3. One or more participants 606 who submitted the fastest second correct choice answers, i.e., the participant or participants who chose the correct answer on the second attempt, along with a rating 612; and

4. One or more participants 608 who submitted the fastest third correct choice answers, i.e., the participant or participants who chose the correct answer on the third attempt, along with a rating 614.

Variations are possible to this format. By way of example, only the first correct choices may be rated, or only the "best" scores of other participants may be provided to everyone along with their own scores, or only rankings may be shown or provided. The identities of the other participants may or may not be provided. The web page may also provide information 618 relating to the speed and correctness of the answer submitted by the participant on his own web browser, and a countdown 620 to the next clip.

Preferably, more than one question would be presented in any game session. For example, ten clips each with one question each may be provided per session to all contestants. Browser software of a downloaded applet may be used to limit the amount of time provided to answer each question (for example, to 10 seconds after the end of each clip), after which the web site server downloads another clip and another question.

Alternately, all of the clips might be downloaded at once to save time, and presented one after the other, each after the expiration of the previous time limit. A collection of clips may be provided, so that the
5 likelihood that different sessions, either successive or concurrent, use the same set of questions is reduced. A final score may be provided as shown in the web page 700 illustrated in Fig. 8.

Participants may play the game purely for fun, or
10 the sponsor may provide prizes for the highest scores. Such presentations would also be useful for promotional purposes, and, as mentioned above, could be coordinated with other advertising. The game may also be presented to participants for educational or training purposes.
15 Depending upon the server used, it may be possible to provide numerous independent sessions in which different groups of participants compete. Preferably, an entire library of audiovisual clips could be stored on the server, a (preferably randomized) selection of which
20 would be presented in each session, to make it difficult to memorize a series of correct answers.

The software and hardware needed for this system may be satisfied at the client (participant) side by typical IBM-compatible personal computers (client PCs), but other
25 computers may also be suitable if compatible software is used. Each client PC may preferably be configured with the Windows95® or Windows98® operating system and the necessary networking software to allow it to run on a TCP/IP based network, such as the Internet. Intel
30 PENTIUM®-based client PCs having a CPU speed of at least 166 MHz are recommended, along with a minimum of 32MB of RAM and a 28.8KB modem. These requirements could be modified, depending upon the audiovisual clip lengths,

resolutions, and download times that are desirable or that can be tolerated. Each client PC must be able to establish a connection to a web page hosted at a synchronization-enabled web site, such as one utilizing the RTIME software described above. An SGI (Silicon Graphics, Inc.) O200 workstation is representative of the desired processing power for the web server.

Once the inventive game is understood, it will be recognized by those of skill in the art that many variations within the scope and spirit of the invention are possible. For example, the audiovisual clips (i.e., clips comprising audio and/or video content) may be either live recordings from amateur or professional sports events, or cartoon or computer-generated simulations of plays in real or simulated sport events. The sports trivia game may also be played on a local network of computers with one server (without excluding the possibility of configuration having more than one server) and multiple clients. Even a single computer or video game device may be configured to play the game, if each player is provided with a data entry device such as a joystick or button pad. (A single keyboard could be used for a limited number of players by assigning portions of the keyboard to individual players.) In these configurations, no synchronizing software is required. Instead, the web server transmits the audiovisual clips (e.g., recordings of plays from live sporting events, or animations of similar subject matter) to participating computers on the local network at the same time or nearly the same time, possibly using a broadcast-like protocol, or the video game or stand-alone computer simply displays the clip on a single screen or a plurality of display screens. The game then proceeds win

the manner described above, with players entering answers either via their local client computer or via the input device attached to the video game or the single computing system.

- 5 In still another variation of the present invention, the questions and/or audiovisual clips may be provided to the game players through a medium other than the computer network, such as through a television broadcast, and the players can then submit their answers via the computer
- 10 network or any other suitable means.

- Because of the variations that are possible within the spirit of the invention, the scope of the invention should be determined by reference to the claims below and their full range of equivalents, in accordance with
- 15 applicable laws.

WHAT IS CLAIMED IS:

1. A method of using a distributed network that provides electronic data communication to a plurality of remote terminals, the method comprising:
 - transmitting an audiovisual clip and a question
 - 5 related to audiovisual clip to each of a plurality of terminals;
 - coordinating a time of playing of the audiovisual clip at the plurality of terminals;
 - receiving, from at least some of the plurality of
 - 10 terminals, a response to the question and data indicative of time elapsed prior to the response being entered;
 - analyzing the responses and data in accordance with predetermined correctness and speed criteria; and
 - transmitting, to at least some of the plurality of
 - 15 terminals, results of the analysis.
2. The method of claim 1, wherein the step of transmitting the audiovisual clip comprises transmitting an audiovisual clip recording of a play that occurred in a sporting event.
3. The method of claim 2, wherein the step of coordinating playing the audiovisual clip comprises coordinating a display of the question and a multiple choice list of possible answers.
4. The method of claim 2, wherein the step of coordinating playing the audiovisual clip comprises, at each terminal, disabling controls providing for redisplay of the audiovisual clip until playback of the audiovisual
- 5 clip has completed.

5. The method of claim 2, and further comprising a step of logging in participants at the terminals with an identification of their own choosing.

6. The method of claim 5, wherein one of the participants is a host participant, further comprising a step of receiving coordination time data from the host participant's terminal, and wherein the step of playing
5 the audiovisual clip at a coordinate time comprises coordinating a playback time at each of the plurality of terminals in accordance with the received coordination time data.

7. The method of claim 6, wherein there are a plurality of host participants, and wherein:

the step of receiving coordination time data comprises a step of receiving coordination time data and
5 session identification data from each of the plurality of host participants; and

the step of logging in participants includes logging a participant into a session identified by a host participant;

10 and wherein the analyzing and result transmitting steps are performed independently for each session.

8. The method of claim 1 wherein the step of coordinating a time comprises coordinating the time in accordance with a preselected time.

9. The method of claim 1 wherein the step of coordinating a time comprises coordinating the time in

accordance with a message transmitted via a broadcast medium:

10. The method of claim 1 repeated a plurality of times, wherein a predetermined delay time is interposed between successive repetitions and wherein the audiovisual clip and question in each repetition is different, and further
5 comprising steps of analyzing an aggregation of results of the repetitions in accordance with correctness and speed criteria, and transmitting, to each of the terminals, results of the analysis of the aggregation of results of the repetitions.

11. A method of using a distributed network, the network providing electronic data communication with variable time delays to remote terminals; the method comprising:
providing a web site accessible to the remote
5 terminals;
logging in a first one of the remote terminals to the web site to initiate a playing session;
setting a global start time for the playing session;
logging into the playing session at least one other
10 of the remote terminals;
transmitting synchronizing pulses to each logged-in terminal;
transmitting an audiovisual clip to each of the logged-in terminals;
15 transmitting a question pertaining to the audiovisual clip to each of the logged-in terminals;
receiving answers transmitted to the web site from the logged-in terminals; and

transmitting, to the logged-in terminals, an
20 indication of those terminals at which a correct answer
was most rapidly provided.

12. A method of using a distributed network, the network
providing electronic data communication with variable
time delays to remote terminals; the method comprising:

providing a web site accessible via the distributed
5 network to the remote terminals;

selecting a group of remote terminals for a playing
session;

transmitting via the distributed network, from the
web site to each of the terminals selected for the
10 playing session, an audiovisual clip, a question relating
to the audiovisual clip, and a synchronizing signal so
that the audiovisual clip and the question are each
displayed at each of the terminals selected for the
playing session at synchronized times;

15 receiving, from at least one of the remote terminals
selected for the playing session, answers to the question
relating to the audiovisual clip and, in conjunction
therewith, indications of elapsed time, relative to the
synchronized time, at which answers were entered into the
20 remote terminals;

analyzing the received answers and their associated
indications of elapsed time in accordance with
correctness and timeliness criteria; and

transmitting an indication of the correctness and
25 timeliness of selected ones of the received answers to
the terminals selected for the playing session.

13. A method of using a distributed network, the network providing data communication with variable time delays to remote terminals; the method comprising:

5 establishing a consistent synchronized time base at a plurality of remote terminals, the plurality of remote terminals thereby constituting a session;

10 distributing, via the distributed network to the remote terminals in the session, an audiovisual clip and a question related to the audiovisual clip that is displayed on the terminals in the session in accordance with the synchronized time base;

15 receiving, via the distributed network from the terminals in the session, a set of responses to the question and corresponding indications of elapsed time for response entry relative to the synchronized time base;

analyzing a set of responses and corresponding indications of elapsed time in accordance with preselected criteria including timeliness criteria; and

20 distributing, via the distributed network, results of the analyzing step.

14. The method of claim 13, wherein the distributing of an audiovisual clip comprises distributing a video recording of a refereed sporting event.

15. The method of claim 14, wherein the distributing of an audiovisual clip comprises distributing a video recording of a play in a refereed sporting event up to, but not including, a call of a referee.

16. The method of claim 15, wherein the distributing of a question relating to the audiovisual clip comprises the

distributing of a question relating to a call of the play in the video recording.

17. The method of claim 16, wherein the receiving step comprises receiving one answer and a corresponding indication of elapsed time from each of a plurality of terminals in the session, and the analyzing step
5 comprises ranking of correct answers received in order of elapsed time.

18. A method of playing a computer game, comprising:
asking a plurality of players a question;
receiving answers to the question from the plurality
of players; and
5 scoring each of the players in accordance with
criteria relating to both speed and correctness of the
received answers.

19. The method of claim 18, further comprising the step
of presenting an audiovisual clip representing a play of
a sporting event to the plurality of players, wherein the
5 asking step includes asking a question relating to the
play represented in the clip.

20. The method of claim 19, wherein all of the steps are
performed by a single, stand-alone device selected from
the group consisting of computers and video games.

21. The method of claim 19, wherein all of the steps are
performed by a server computer or a computer network.

22. The method of claim 19, wherein the presenting step comprises presenting a recording of a portion of a live sporting event.

23. The method of claim 19, wherein the presenting step comprises presenting an animation representing a play of a sporting event.

FIG. 1

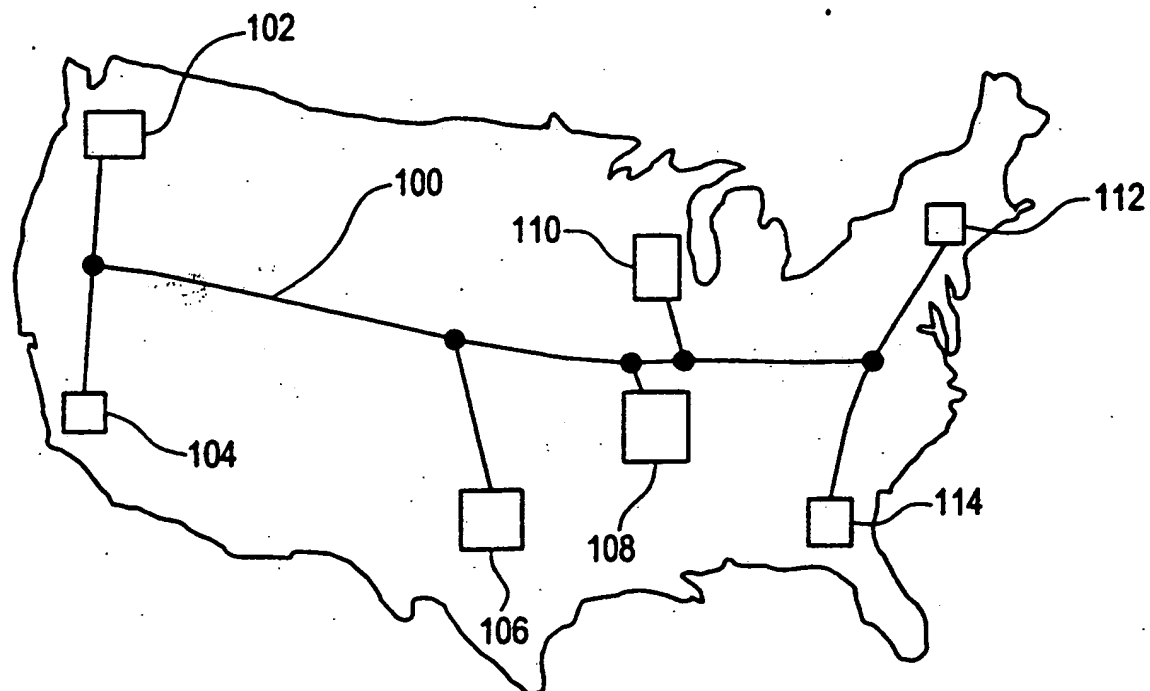


FIG. 2

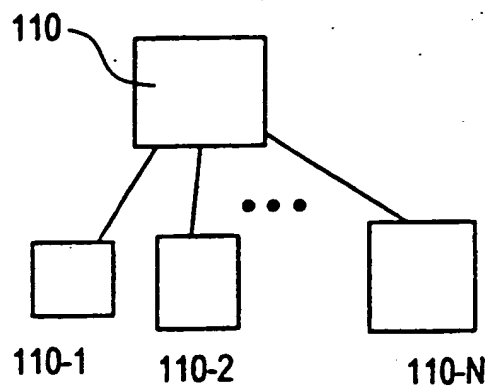


FIG. 3

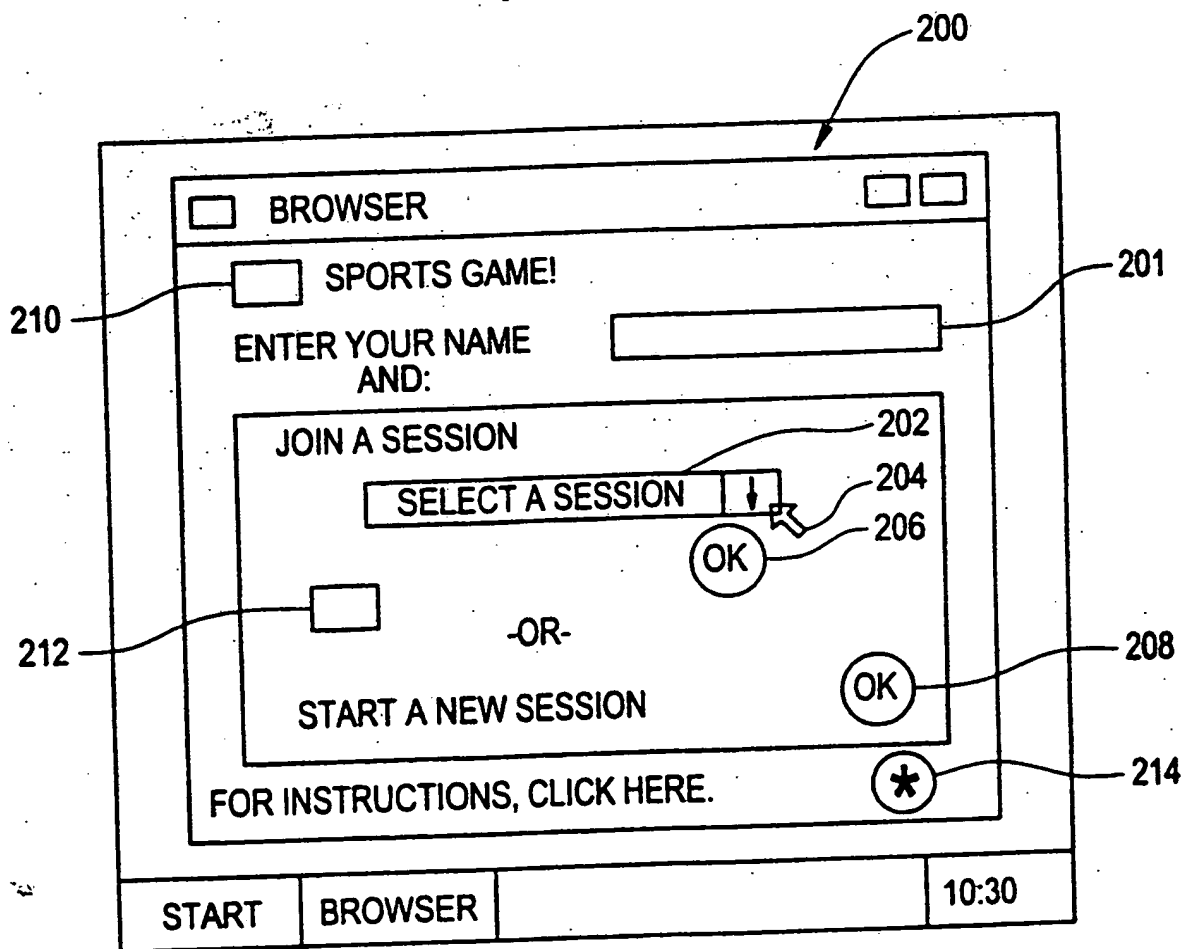
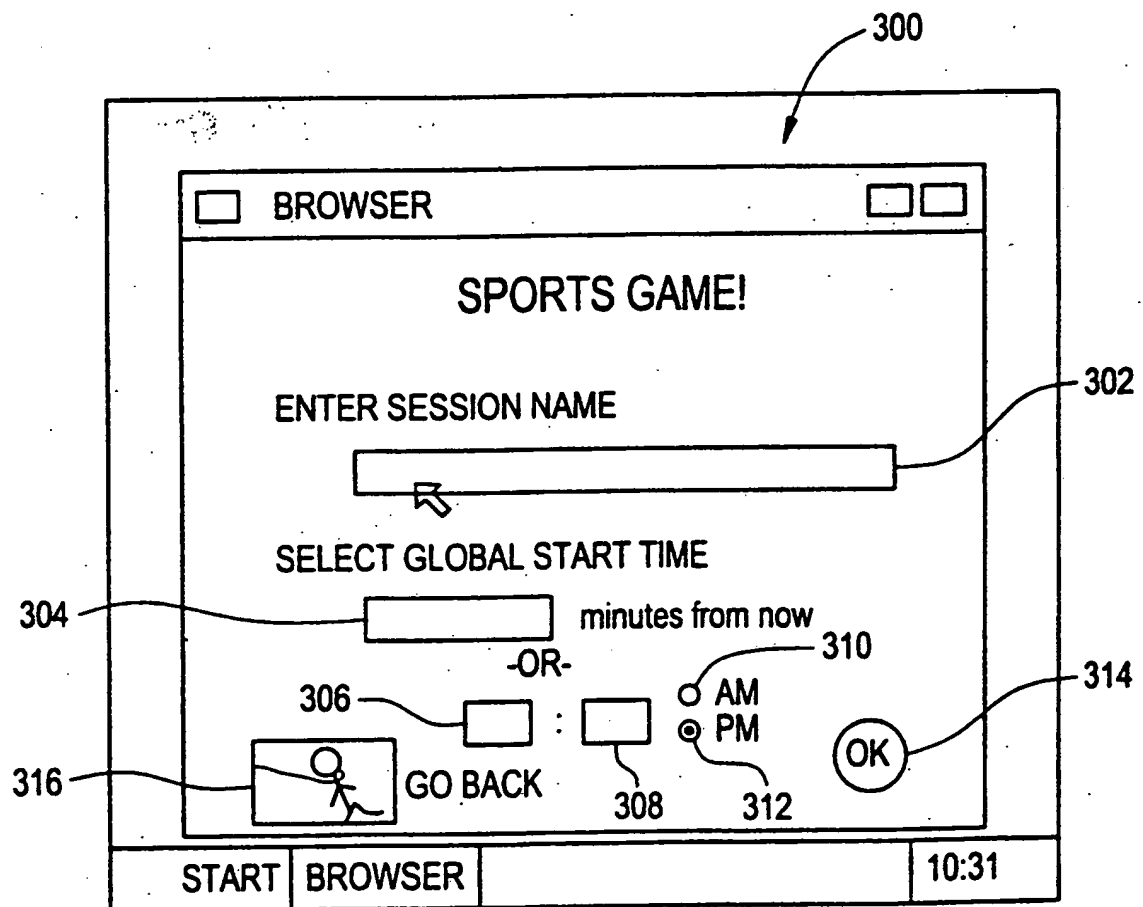
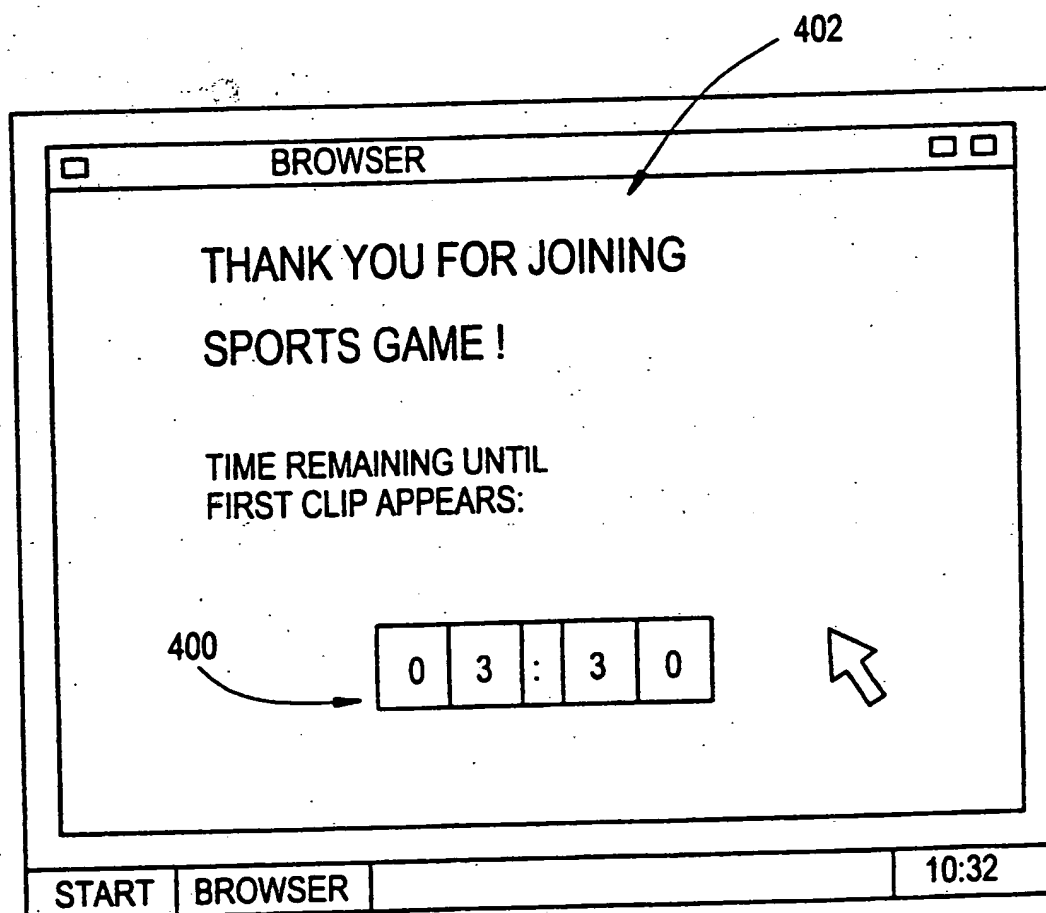


FIG. 4



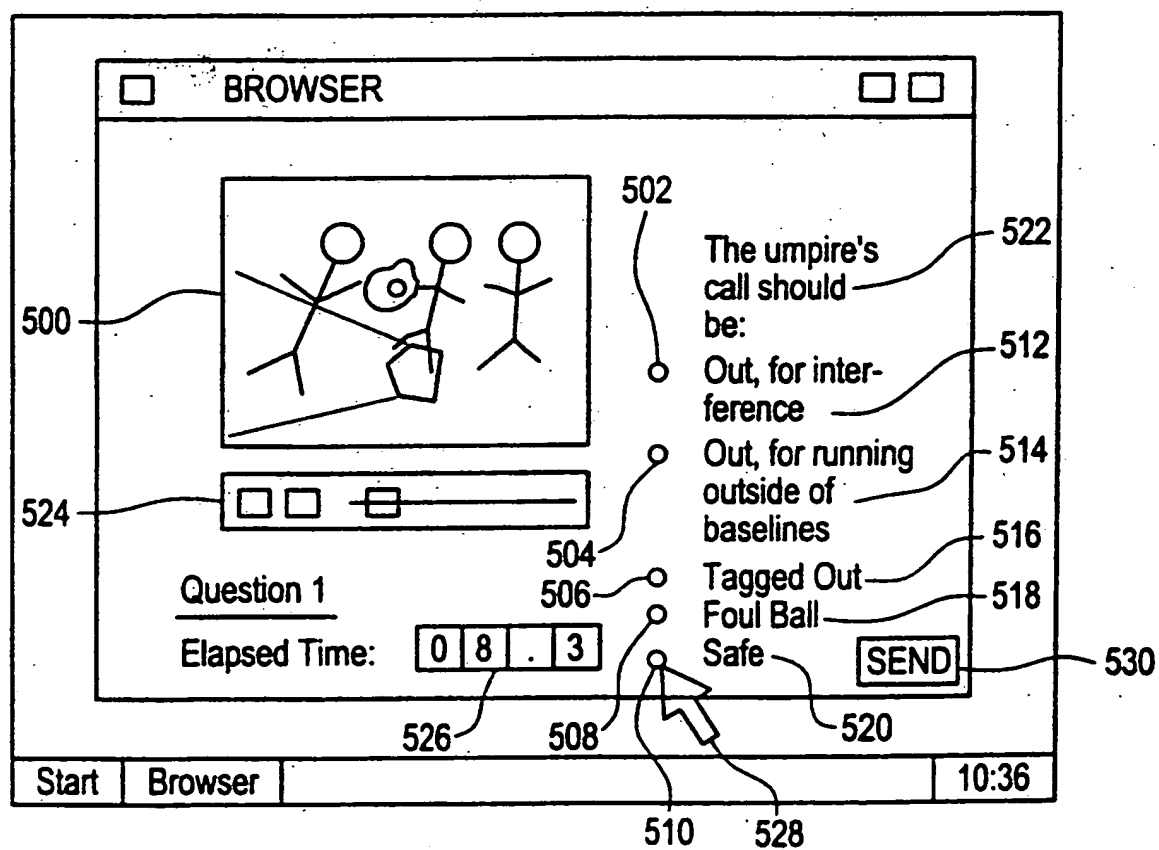
4/7

FIG. 5



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FIG. 6



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FIG. 7

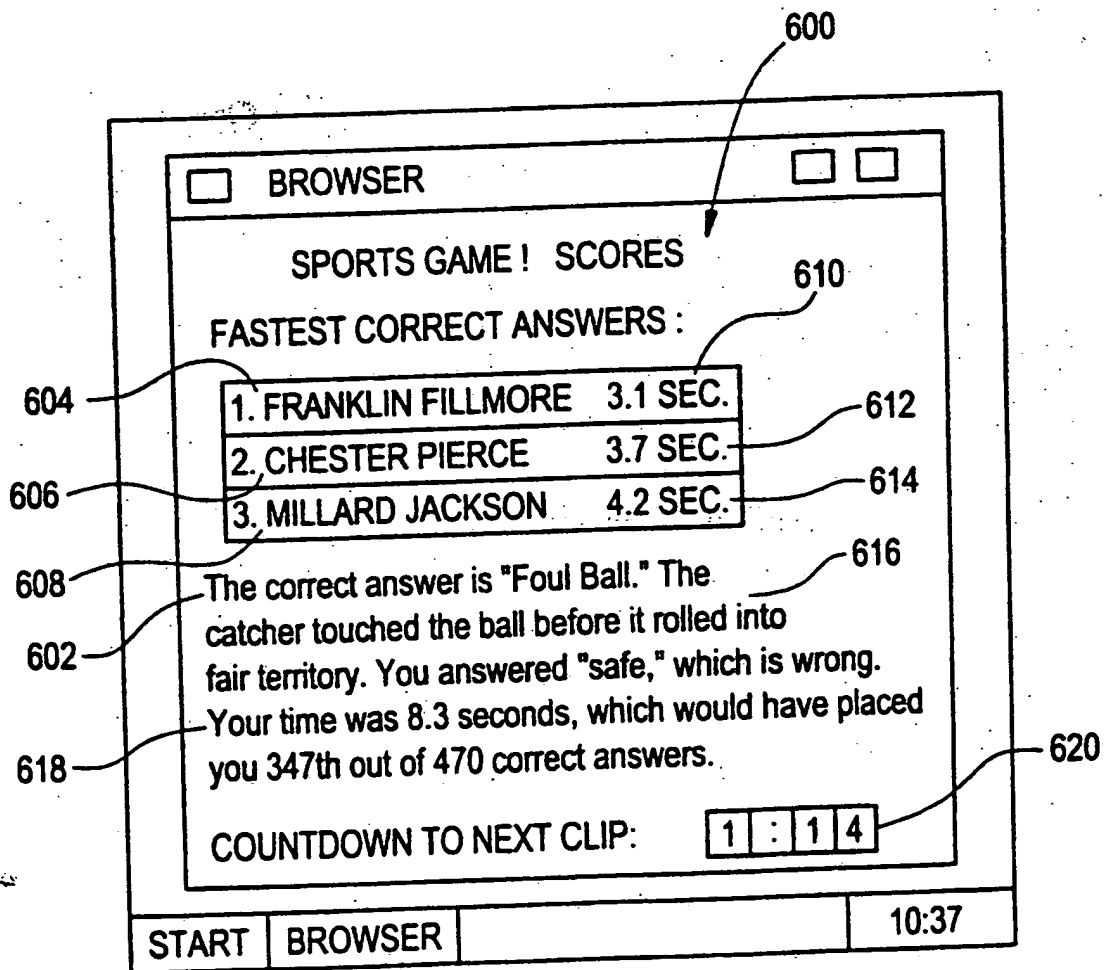
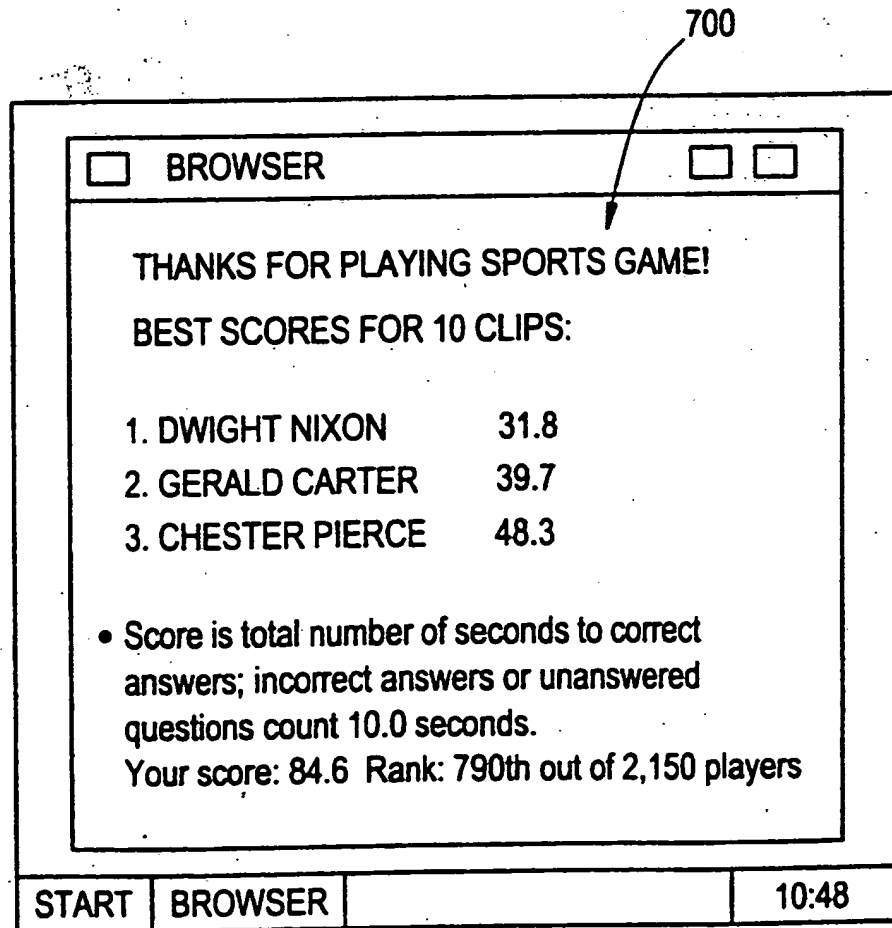


FIG. 8



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/17465

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :A63F 9/24

US CL :463/40

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 463/40, 41, 42, 43, 31, 35, 17, 25

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
EAST

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,697,844 A (VON KOHORN) 16 December 1997, See col. 3, lines 8-38; col. 13, lines 56-60; col. 76, lines 17-22; col. 73, lines 31-32; col. 93, lines 14-47; col. 100, lines 4-8; col. 120, lines 20-41	1-23

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

<p>Special categories of cited documents:</p> <p>*A* document defining the general state of the art which is not considered to be of particular relevance</p> <p>*E* earlier document published on or after the international filing date</p> <p>*L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>*O* document referring to an oral disclosure, use, exhibition or other means</p> <p>*P* document published prior to the international filing date but later than the priority date claimed</p>	<p>*T* later documents published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>*X* documents of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>*Y* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>*A* documents member of the same patent family</p>
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Date of the actual completion of the international search

07 AUGUST 2000

Date of mailing of the international search report

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Patent Specialist
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DOCUMENTS CONSIDÉRÉS COMME PERTINENTS		Revendications concernées	Classement attribué à l'invention par l'INPI
Catégorie	Citation du document avec indication, en cas de besoin, des parties pertinentes		
X	US 5 697 844 A (VON KOHORN) 16 décembre 1997 (1997-12-16) * colonne 25, ligne 18 - colonne 28, ligne 16 * * colonne 46, ligne 49 - ligne 52 * * colonne 93, ligne 41 - ligne 47 * * colonne 120, ligne 37 - ligne 41 * * colonne 122, ligne 18 - ligne 27 * * colonne 126, ligne 5 - ligne 32 *	1-3	A63F9/18 H04L29/12
X	US 4 593 904 A (GRAVES) 10 juin 1986 (1986-06-10) * le document en entier *	1-3	
E	WO 01 00290 A (RULESWORKS) 4 janvier 2001 (2001-01-04) * le document en entier *	1-3	
			DOMAINES TECHNIQUES RECHERCHÉS (InCL.7)
			A63F
Date d'achèvement de la recherche		Examineur	
2 juillet 2001		Raybould, B	
CATÉGORIE DES DOCUMENTS CITÉS X : particulièrement pertinent à lui seul Y : particulièrement pertinent en combinaison avec un autre document de la même catégorie A : arrière-plan technologique O : divulgation non-écrite P : document intercalaire T : théorie ou principe à la base de l'invention E : document de brevet bénéficiant d'une date antérieure à la date de dépôt et qui n'a été publié qu'à cette date de dépôt ou qu'à une date postérieure. D : cité dans la demande L : cité pour d'autres raisons & : membre de la même famille, document correspondant			

**RECHERCHE INCOMPLÈTE
FEUILLE SUPPLÉMENTAIRE C**

Numéro de la demande

FA 599060
FR 0011977

Certaines revendications n'ont pas fait l'objet d'une recherche ou ont fait l'objet d'une recherche incomplète, à savoir:

Revendications ayant fait
l'objet de recherches complètes:
1-3

Revendications n'ayant pas fait
l'objet de recherches:
4-11

Raison:

- Plan, principe et méthode en matière de jeu.

Les revendications 4-11 portent sur un "procédé de divertissement" qui est caractérisé uniquement par des étapes de sélection et d'exécution d'extraits d'oeuvres artistiques, de création et de traitement de questions et de réponses relatives à ces oeuvres, de comptabilisation de scores de jeu, d'attribution de jokers, de paiement permettant la participation au jeu, de décompte du nombre de fois où les oeuvres sont jouées, de calcul des redevances de droits d'auteur correspondantes.

Ces étapes constituent les étapes d'une méthode en matière de jeu faisant appel à des oeuvres de l'esprit et associée à une méthode dans le domaine des activités économiques.

**ANNEXE AU RAPPORT DE RECHERCHE PRÉLIMINAIRE
RELATIF A LA DEMANDE DE BREVET FRANÇAIS NO. FR 0011977 FA 599060**

La présente annexe indique les membres de la famille de brevets relatifs aux documents brevets cités dans le rapport de recherche préliminaire visé ci-dessus.
Les dits membres sont contenus au fichier informatique de l'Office européen des brevets à la date du 02-07-2001
Les renseignements fournis sont donnés à titre indicatif et n'engagent pas la responsabilité de l'Office européen des brevets, ni de l'Administration française

Document brevet cité au rapport de recherche	Date de publication	Membre(s) de la famille de brevet(s)	Date de publication
US 5697844 A	16-12-1997	US 5759101 A	02-06-1998
		US 5508731 A	16-04-1996
		US 5283734 A	01-02-1994
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		US 5916024 A	29-06-1999
		US 2001003099 A	07-06-2001
		AU 6137794 A	14-09-1994
		EP 0686334 A	13-12-1995
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		US 5034807 A	23-07-1991
		US 4876592 A	24-10-1989
US 4593904 A	10-06-1986	AUCUN	
WO 0100290 A	04-01-2001	AU 5766000 A	31-01-2001

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(19) World Intellectual Property Organization
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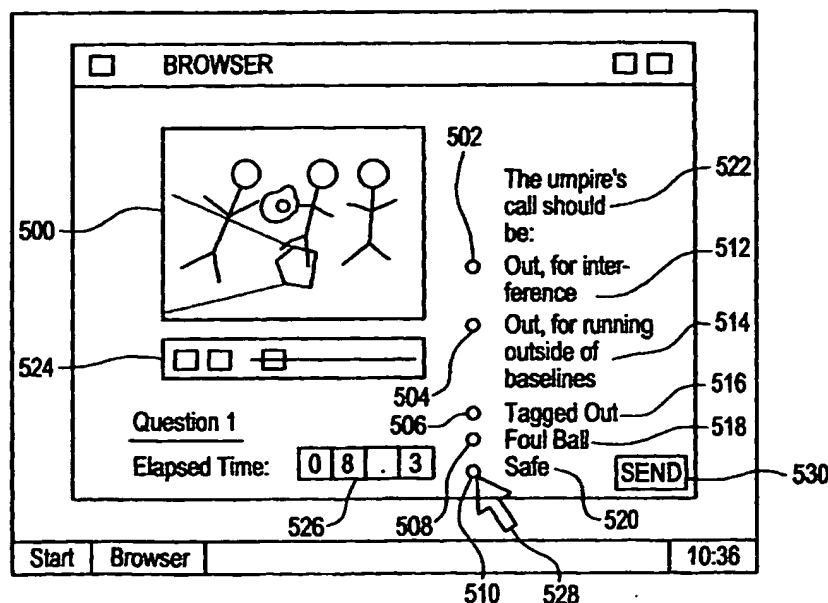
(74) Agents: THOMAS, Michael, J. et al.; Senniger, Powers, Leavitt & Roedel, One Metropolitan Square, 16th Floor, St. Louis, MO 63102 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.

(84) Designated States (regional): ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE,

[Continued on next page]

(54) Title: METHOD FOR MULTIPLAYER SPORTS TRIVIA GAME



(57) Abstract: A method for using a widely distributed network with appreciable time delays for playing a sports trivia game in which participants compete on the basis of both correctness of answers and speed of response. When a sports trivia game is played, an audiovisual clip (500) starts and a question (522) is presented. The participant's answers and respective answer times are communicated to a server that analyzes the answers and answer times based upon selected criteria of correctness and speed of response. Results of the analysis are transmitted back to the participants over the network.

WO 01/00290 A1



IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).

(15) Information about Correction:

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Published:

— *With international search report.*

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28 June 2001

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

METHOD FOR MULTIPLAYER SPORTS TRIVIA GAME

Background of the Invention

This invention relates to methods for implementing and playing a computer-based game, and more specifically to a method for using a widely distributed computer
5 network, such as the Internet, for playing a multiplayer sports trivia game in which both speed of response and correctness of answers are used as bases for competition.

Many people enjoy the competition of trivia games. Many board games, such as the well-known "Trivial
10 Pursuit," have been successfully marketed to take advantage of this fact. Even before "Trivial Pursuit," many popular radio and TV game shows were developed in which knowledge of various types of trivia was rewarded. In some of these shows, the ability to answer questions
15 before other competitors was necessary to win. In one

early TV show, contestants literally ran across the stage to be the first to ring a bell, for which they were rewarded by being given the opportunity to answer a question. In other shows, electronic devices were used
5 to "lock out" all but the first contestant who signified his willingness to answer a question.

In "Jeopardy," perhaps the best-known of TV trivia game shows, contestants are in the same room. When contestants press a button to signify their readiness to
10 provide a question appropriate for an answer supplied by the game show host (a gimmick that distinguishes "Jeopardy" from other game shows), the electronic response is clearly immediate. The first contestant pressing a button at his or her podium to signal a
15 readiness to respond immediately produces an audio and visual signal alerting the host to call on that contestant for a response. The other contestants appear to be "locked out," in that they appear to be unable to produce the readiness signal by pushing their buttons
20 until after either the first contestant has given an incorrect response or a new response is solicited from all contestants.

Sports trivia entertainment is also popular. For example, in a series of former television commercials
25 entitled "You Make The Call," a replay of a portion of a professional football game was shown, and the viewer was asked what he or she would have decided if required to make a decision as a referee in the situation presented. Because these commercials were broadcast for viewing
30 entertainment only, answers were not provided back to the broadcaster and viewers or listeners in different locations did not compete with one another to be the first to provide the right answer.

Variations of the "You Make The Call" program have been observed at live sporting events. At baseball games in St. Louis, for example, a large video display board and public address system is occasionally used to present
5 a (possibly animated) video clip of a baseball play. The game is played with a contestant selected from the crowd. After the question is posed, the contestant is shown several possible answers on the video display board, and is asked to select an answer. A prize may be awarded to
10 the contestant, depending upon the correctness of the answer he or she supplies. There is no competition between multiple contestants in this game and no time limit is provided for selecting an answer.

Certain "real-time" games that require or take
15 useful advantage of an Internet connection are also known. These games are based upon subject matter disclosed in U.S. Patent No. 5,841,980 to Waters et al., entitled "Distributed system for communication networks in multi-user applications," which is herein incorporated
20 by reference in its entirety. The Waters et al. patent is directed to a system for overcoming bandwidth limitations of network backbones to allow for national participation in multi-user applications across a large-scale network. RTIME Inc. is a company that produces the
25 RTIME INTERACTIVE NETWORKING ENGINE™, an interactive networking engine based upon this patent that allows game developers and publishers to rapidly build or port multiplayer games to run over the Internet. Examples of fast-action, multiplayer games implemented in this manner
30 are BATTLECRUISER 3020AD™, "RTIME Rocks!", "Turok 2: Seeds of Evil For The PC," "SpecOps: Rangers Lead the Way," and "PARAWORLD." Each of these games generate fanciful worlds in which players engage in combat, trade,

and/or exploration. However, none of these games are known to show clips from actual or simulated sporting events or to pose questions related to such events.

RTIME's networking software is said to be derived
5 from the SIMNET project for the United States Government. This project involved combat training simulation and was used to train U.S. troops through interactive battle simulations. Thus, it is not surprising that games currently known to use this type of networking technology
10 are interactive battle simulation games.

There is no known game played on a distributed network having appreciable differential time delays in which an audiovisual clip and at least one question pertaining to the audiovisual clip having a verifiable
15 answer are distributed to participants via the distributed network, the presentations of the video clip and the at least one question to each of the participants are synchronized, responses of the participants received via the distributed network are analyzed with respect to
20 both speed and correctness criteria, and results of the analysis are distributed to the participants.

BRIEF DESCRIPTION OF THE INVENTION

There is therefore provided, in accordance with one aspect of the invention, a method of using a distributed
25 network that provides electronic data communication to a plurality of remote terminals, the method comprising: transmitting an audiovisual clip and a question related to the clip to each of a plurality of terminals; coordinating a time of playing back of the audiovisual
30 clip at the plurality of terminals; receiving, from at least some of the plurality of terminals, a response to the question and data indicative of time elapsed prior to the response being entered; analyzing the responses and

the data received in accordance with predetermined correctness and speed criteria; and transmitting, to at least some (but preferably all) of the plurality of terminals, results of the analysis. The audiovisual clip
5 may comprise either audio or video information, or both, to be played back at each terminal operated by a participant. It is understood that a "terminal" as used herein, may refer to any device, including wireless devices, useful for communication over the computer
10 network and capable of performing the needed interactions with the network and a participant. Such devices may include personal computers, for example. Further in accordance with this aspect of the invention, the audiovisual clip may be a recording of a play that
15 occurred in a sporting event, and the coordination step may comprise coordinating a display of the question and a multiple choice list of possible answers. Local control of playback of the audiovisual clip may be disabled until after the audiovisual clip has completely played back at
20 a coordinated time. One or more host participants may set different starting times for different sessions, and individual participants may select a session to join.

In accordance with another aspect of the invention, there is provided a method of using a distributed
25 network, the network providing electronic data communication with variable time delays to remote terminals, the method comprising: providing a web site accessible to the remote terminals; logging in a first one of the remote terminals to the web site to initiate a
30 playing session; setting a global start time for the playing session; logging into the playing session at least one other of the remote terminals; transmitting synchronizing pulses to each logged-in terminal;

transmitting a question pertaining to the audiovisual clip to each of the logged-in terminals; receiving answers transmitted to the web site from the logged-in terminals; and transmitting, to the logged-in terminals, an indication of those terminals at which a correct answer was most rapidly provided.

In accordance with yet another aspect of the invention, there is provided a method of using a distributed network, the network providing electronic data communication with variable time delays to remote terminals, the method comprising: providing a web site accessible via the distributed network to the remote terminals; selecting a group of remote terminals for a playing session; transmitting via the distributed network, from the web site to each of the terminals selected for the playing session, an audiovisual clip, a question relating to the audiovisual clip, and a synchronizing signal so that the audiovisual clip and the question are each displayed at each of the terminals selected for the playing session at synchronized times; receiving, from at least one of the remote terminals selected for the playing session, answers to the question relating to the audiovisual clip and, in conjunction therewith, indications of elapsed time, relative to the synchronized time, at which answers were entered into the remote terminals; analyzing the received answers and their associated indications of elapsed time in accordance with correctness and timeliness criteria; and transmitting an indication of the correctness and timeliness of selected ones of the received answers to the terminals selected for the playing session.

In accordance with yet another aspect of the invention, there is provided a method of using a

distributed network, the network providing data communication with variable time delays to remote terminals, the method comprising: establishing a consistent synchronized time base at a plurality of

5 remote terminals, the plurality of remote terminals thereby constituting a session; distributing, via the distributed network to the remote terminals in the session, an audiovisual clip and a question related to the audiovisual clip that is displayed on the terminals

10 in the session in accordance with the synchronized time base; receiving, via the distributed network from the terminals in the session, a set of responses to the question and corresponding indications of elapsed time for response entry relative to the synchronized time

15 base; analyzing a set of responses and corresponding indications of elapsed time in accordance with preselected criteria including timeliness criteria; and distributing, via the distributed network, results of the analyzing step. Further in accordance with this aspect

20 of the invention, the audiovisual clip may be a video recording of a refereed sporting event, and the clip may be a recording of a play up to, but not including, a call of a referee. The question preferably relates to the call of the referee, so that participants may compete

25 with each other to guess the correct call in the shortest possible time. Because the call may be checked by reference to the rules of the sport, the answers are independently verifiable. Preferably, an answer and a corresponding indication of elapsed time are received

30 from each of a plurality of terminals in the session, and the analyzing step comprises ranking of correct answers in order of elapsed time.

In yet another aspect of the invention, there is provided a method of playing a computer game, comprising: asking a plurality of players a question; receiving answers to the question from the plurality of players; 5 and scoring the players in accordance with criteria relating to both speed and correctness of the answers. The method preferably includes the additional step of presenting an audiovisual clip representing a play of a sporting event to the plurality of players, and the 10 question preferably relates to the play represented in the clip. In accordance with this aspect of the invention, the game need not be played on a computer network.

It is thus an object of the invention to provide a 15 method for using a distributed network in a manner that allows a game or other competitive activity to take place with fair and consistent timing of correct answers provided by the participants.

It is another object of the invention to provide a 20 method for using a distributed network in the playing of a sports trivia game.

It is yet another object of the invention to provide a method for using a distributed network in which a plurality of participants may compete at a time selected 25 by a host participant.

It is still another object of the invention to provide a method for using a distributed network that coordinates a timed game, preferably a sports trivia game, to be synchronized with a broadcast announcement or 30 advertisement.

It is yet an additional object of the invention to provide a method of playing a game on a wide area computer network with appreciable delays that permits

scoring of both the relative speed and accuracy of answers to questions presented via the network.

It is yet another object of the invention to provide a sports trivia game that need not be played over a large computer network, and that is suitable to playing on a
5 single computer or video game, or on a relatively small computer network.

It is yet another object of the invention to provide a game for a plurality of players that is scored on the
10 basis of both the speed and the correctness of the answers given.

It will be observed that certain embodiments of the invention may achieve one or more of the above objects or other objects that will become apparent below without
15 necessarily achieving all of them. Such embodiments are also to be considered within the scope of the invention insofar as they are claimed herein.

The manner in which these and other objects of the invention are achieved will become apparent to one
20 skilled in the art upon studying the drawings and the accompanying description of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a simplified schematic representation of a large, distributed computer network on which the game may
25 be played in accordance with the invention;

Fig. 2 is a simplified schematic representation of a portion of the large computer network of Fig. 1, showing a group of terminals connected to a network node;

Fig. 3 is a representation of a computer screen
30 displaying an exemplary embodiment of an opening screen of the game;

Fig. 4 is a representation of a computer screen displaying an exemplary web page transmitted to

participants of a session at the start of a game in accordance with the invention;

Fig. 5 is a representation of a computer screen displaying an exemplary web page transmitted to
5 participants prior to the global start time of a game in accordance with the invention;

Fig. 6 is a representation of a computer screen displaying an exemplary web page transmitted to participants during a game showing an audiovisual clip
10 being displayed along with a question concerning the clip;

Fig. 7 is a representation of a computer screen displaying an exemplary web page transmitted to a particular participant after an answer to the question in
15 Fig. 6 is transmitted by that participant to the game's web server in accordance with the invention; and

Fig. 8 is a representation of a computer screen displaying an exemplary web page transmitted to the particular participant at the end of a game in accordance
20 with the invention.

DETAILED DESCRIPTION OF THE INVENTION

Fig. 1 is a simplified schematic illustration of a large distributed computer network 100 on which an embodiment of the inventive game may be played. Network
25 100 is preferably the Internet, although the invention may also utilize any other network having a synchronized time base or capable of locally providing a simulated synchronized time base. (It is also possible to implement the game on a single computer or on a local
30 network or any other network in which communication delays are insignificant. In such cases, no synchronized time base is required.) The simplified Internet network topology represented in Fig. 1 is not intended to

represent a critical feature of the embodiment of the invention described herein. A number of computers 102, 104, 106, 108, 110, 112, and 114 are connected and in electronic communication with one another over network 5 100. Other computers, terminals, and even other networks may be connected to the computers represented in Fig. 1, as illustrated in Fig. 2. In Fig. 2, computer 110, which is in communication with network 100, is shown to also be in communication with devices 110-1, 110-2, ... 110-N, 10 where N is an arbitrary number. These devices could be terminals, computers, or computer networks. For discussion purposes, let us assume that devices 110-1, 110-2, etc., and the devices attached to computer 110 (and other devices similarly attached to the other 15 numbered computers 102, 104, etc.) for purposes of playing the inventive game are personal computers (PCs) or any other devices capable of providing a web browser function. At least one of the devices attached to the numbered computers 102, 104, etc. will be a web server to 20 provide web pages to the PCs. In general, if network 100 is the Internet, only a small part of the communication taking place over the network will involve the inventive game, and only a limited number of devices communicating on the Internet will be computers actively involved with 25 the game, either as servers or clients. Let us assume, however, for discussion purposes that each computer designated by "-1" (e.g., 100-1) represents a server for the inventive game and each other computer designated by -2, ... -N (e.g., 100-2) represents a personal computer 30 with a browser that is or that may become involved in playing the inventive game. (Games for smaller networks or single computers will be considered separately below.)

Let us consider a game in accordance with the invention that provides ten audiovisual clips, each clip having one associated question and five multiple choice selections from which to choose an answer. It is not
5 required, however, that each clip be associated with only one question, that each question have the same number of multiple choice selections from which to choose an answer, or that any or all of the questions be presented in multiple choice format. Of course, the number of
10 clips presented in a single game need not be ten, as any number of clips may be used in a game.

The audiovisual clips may be stored in any file format that permits downloading and display by a web browser, such as INTERNET EXPLORER or NETSCAPE NAVIGATOR.
15 Other browsers or programs having equivalent functionality may be used, but optimization for presentation on either or both of these browsers may be desirable at present to obtain the widest possible pool of potential participants.

20 The first participant accesses one or more introductory web pages on a game server. An exemplary web start page 200 is shown in Fig. 3 as it might be displayed on the screen of a typical home computer. This illustration is somewhat simplified, as the display may
25 vary somewhat, depending upon the operating system and web browsing software in use. Web page 200 preferably registers the participant so that he or she may be scored and ranked against the other participants. Optionally, before allowing participants to play the game, the
30 registration process may require the participants to enter demographic or personal information about themselves either on the opening page 200 or on a subsequent page (not shown). The web site may also

provide advertising displays 210, 212 containing advertising content and/or providing links to other web sites, as is known in the art. Similar advertising displays may optionally appear on any of the web pages of the game, and may optionally be integrated into the audiovisual clips and their associated questions and answers. However, no further reference to such displays will be made in this explanation.

A participant may be allowed to select a game session that has already been started or start a new session. Game sessions may be started either by the web server itself or by a "host" participant, or by both, in accordance with the invention. In an exemplary embodiment of the invention, the web server communicating with the participant's client computer maintains a database of session names that may be joined and provides these names as a selection list 202 to participants. Typically, a participant may select a name from the list 202 with a mouse cursor 204 and confirm the selection by moving the cursor to the "OK" button 206 and clicking on this button. As an alternative, a participant might choose to start his or her own session by clicking on button 208. If a potential participant does not understand the rules of the game, or what is requested of him or her, a help button or link 214 is preferably provided to display a page of instructions (not shown). Help may be provided in a pop-up window or it may simply display in the same window as the opening screen. In the latter case, it would be desirable to provide a link back to the web page displayed from which the participant transmitted the help request.

It should be observed that additional information could be requested of a participant for identification,

demographic collection, or other commercial purposes. Such additional information could be collected on the starting web page 200 or on a subsequent web page (not shown). Optionally, supplying such additional

5 information may be made a prerequisite for allowing a participant to play the game. Also optionally, the name or other identification of the participant may be added to a database. Game participants may be uniquely identified in other ways by a web server, such as by

10 their Internet IP addresses. However, participants may prefer being identified by a more user-friendly way, such as by name of their own choosing, even if the name selected does not happen to be their first choice. A database of names and session collected by the web server

15 would allow it to transmit a request for a second choice if a participant's submitted identification were not unique, at least within the game session that he or she has joined.

A necessary feature of the game is that a global

20 start time be selected. When a host participant selects the "start a new session" option 208 of Fig. 3 in this exemplary embodiment, the web server transmits to that participant the web page 300 shown in Fig. 4. The global start time is preferably set by a host participant. In

25 the exemplary embodiment, the host participant selects a session name (which should be verified by the web server as not already in use as the name of another active or pending game session) and enters it into entry window 302 of web page 300. The host participant also sets a global

30 start time, which is then used to synchronize all of the participants' audiovisual playback, question presentation, and answer timing for the game. In the exemplary embodiment, the global start time may be

entered as a time relative to the present in entry window 304, or a specific clock time at entry windows 306 and 308. An indication of AM or PM is preferably set by selection of one of the mutually exclusive selections 5 310, 312. If the host participant is satisfied with the entries in web page 300, he or she may transmit them by clicking on the "OK" button 314. The participant is also preferably given a chance to reconsider joining an already established session by clicking on the "go back" 10 button 316, which may simply return the participant to web page 200. If the host participant does select the OK button 314, the reasonableness of the start time may be verified by the web server. For example, the web server could optionally be programmed to reject start times more 15 than some predetermined interval in the future, such as 24 hours. In such a case, the host participant could be prompted to enter a more reasonable start time. The start time should also be required to be set sufficiently in advance so that the network synchronizing system is 20 able to accommodate all expected network delays. The required minimum delay may be different for different networks. (For the Internet, it has empirically been determined that two minutes in advance is usually sufficient, although it may be necessary to determine 25 this value empirically as the evolution and growth of the Internet continues.) In the exemplary embodiment, no other participant logging into the game session is permitted to change the start time, which becomes the basis of the start time for all participants. However, 30 the web server might be configured to relax this rule under certain conditions or at the discretion of the game's sponsor.

Session start times may alternately be preprogrammed at the web server. The web server may provide for global start times of games at hourly or half-hourly intervals, for example, or at other times. A global start time
5 could be coordinated with the appearance of a commercial on television or radio, so that the commercial may be used to entice viewers or listeners to log into a game. Such coordination may be useful for promotion of a broadcast event, such as a sporting event or to reinforce
10 the advertising message of a sponsor of that event.

Synchronization of start times may be provided by a system such as that described in the Waters et al., patent mentioned supra. This software, which is provided by RTIME, Inc. of Seattle, WA, may be used to synchronize
15 the starting of videos across all web browsers and across various Internet connections. Although there can be unusual conditions on the Internet that may, from time to time, cause discrepancies in the synchronized timebase, global time is normally coordinated sufficiently
20 accurately by this software for purposes of this invention. Generally speaking, the system of Waters et al. requires the use of multiple web servers that service clients that are nearby (in the networking sense), with communication occurring only as required between the
25 multiple web servers. However, the system is arranged so that, from the point of view of each participant, only a single web server appears to be involved. The use of the singular term "web server" in this explanation is, in part, due to the adoption of this point of view for much
30 of the description of this embodiment of the invention. In other embodiments of the invention played on a local network, on a single computer, or on any other computing system or network in which network communication delays

are negligible, synchronization software would not be required.

Participants may be added to a game up to a number and until a time set at the discretion of the game's sponsor (or optionally, by the participants, particularly the host participant) and enforced by the web server. Referring to Fig. 5, a countdown display 400 is preferably provided to participants before the start of the game. This countdown timer may show the amount of time before the next game clip appears. During this time, the web server may provide additional web pages 402 or audiovisual material to be displayed on participants' web browsers. Such material may be selected to maintain the interest of the participants, or to present advertising material, or both.

Meanwhile, as illustrated in Fig. 6, the web server (or a coordinated group of web servers each servicing a number of participants) sends an audiovisual clip 500 (which may include moving video, sound, or both) to each participants' web browser. The software controls the timing of the clip so that all of the browsers display the clip at the coordinated start time. The clip will be resident on the remote clients' disks, and may be in the well-known "AVI" format, so that they are playable in a standard commercial browser interface, such as the MEDIAPLAYER™ or NETSHOW® interfaces. Preferably, selection "buttons" 502, 504, 506, 508, 510 corresponding to each of the possible answers 512, 514, 516, 518, 520 to a question 522 about clip 500 will be displayed next to the audiovisual clip window. Also, preferably, replay (i.e., restarting on demand) of the clip (such as provided by controls 524) will be disabled until the final frame has been displayed to each of the participants (and,

optionally, thereafter). This will allow playback to be synchronized to ensure that each participant receives identical information at the same rate during the coordinated presentation period. During the display of the clip, an elapsed time display 526 is preferably also displayed on each participant's web browser display. The elapsed time is derived from synchronization pulses provided by the synchronization software. To ensure that all clients start their video at precisely the same time, within some margin of error (e.g., about 200 milliseconds), an ActiveX® control or functional equipment may be integrated into the global time base.

Preferably only after an audiovisual clip 500 is displayed, or optionally, during the clip, a question 502 is displayed and each participant is given the opportunity to select and transmit an answer to the question. For simplicity, a selection of multiple choice answers 512, 514, 516, 518, 520 are preferably provided, but any other form of answer that can be transmitted by the participants' web browsers may also be used in conjunction with the invention. Preferably, the correct answer would be verifiable by reference to the clip and to the official rules for the sport to which the question pertains. The elapsed time counter 526, in conjunction with the synchronization pulses, provides an indication of the time that has elapsed from some global reference, such as the beginning of the playback of clip 500, or the instant question 522 was displayed. This indication is transmitted back to the web site along with the selected answer to the question. The elapsed time transmitted to the web server may indicate either the time elapsed from the global reference time until the participant selected the answer, or the time the participant confirmed the

choice. The latter would be appropriate if, for example, separate confirmation (such as by clicking cursor 528 on button 530) is required to indicate that the selected answer is the one that the participant wishes to transmit
5 back to the web server. It is necessary that the elapsed time be measured consistently so that the game can be scored fairly. A browser applet may be provided to each client to impose a time limit for providing a correct answer. If the time limit is exceeded, that participant
10 may be considered as not having supplied a correct answer. Participants may optionally be given more than one chance to select a correct answer, in which case, they must be notified when they have selected an incorrect answer. Server synchronization pulses may be
15 sent to each participant's terminal before and during the game to ensure that local times are consistent at initialization, and remain consistent up to and during the game.

When all of the answers reach the web site for
20 analysis, the server analyzes the answers for correctness and the elapsed times that are provided with the answers. After this analysis is complete, the server then transmits to each participant a web page 600, such as illustrated in Fig. 7, that contains the answer 602 to
25 question 522 and information 604, 606, 608, 610, 612, 614 pertaining to participants whose answers meet certain criteria relating to correctness and speed of response. For example, the following compilation may appear in order:

30 1. The correct answer 602, which may also include editorial comment 616 that expands or explains the answer;

2. One or more participants 604 who submitted the fastest first correct choice answers, i.e., the participant or participants who chose the correct answer on the first attempt, along with a rating 610, in accordance with some predetermined criteria including correctness and speed, to compare their score to that of other participants;

3. One or more participants 606 who submitted the fastest second correct choice answers, i.e., the participant or participants who chose the correct answer on the second attempt, along with a rating 612; and

4. One or more participants 608 who submitted the fastest third correct choice answers, i.e., the participant or participants who chose the correct answer on the third attempt, along with a rating 614.

Variations are possible to this format. By way of example, only the first correct choices may be rated, or only the "best" scores of other participants may be provided to everyone along with their own scores, or only rankings may be shown or provided. The identities of the other participants may or may not be provided. The web page may also provide information 618 relating to the speed and correctness of the answer submitted by the participant on his own web browser, and a countdown 620 to the next clip.

Preferably, more than one question would be presented in any game session. For example, ten clips each with one question each may be provided per session to all contestants. Browser software of a downloaded applet may be used to limit the amount of time provided to answer each question (for example, to 10 seconds after the end of each clip), after which the web site server downloads another clip and another question.

Alternately, all of the clips might be downloaded at once to save time, and presented one after the other, each after the expiration of the previous time limit. A collection of clips may be provided, so that the
5 likelihood that different sessions, either successive or concurrent, use the same set of questions is reduced. A final score may be provided as shown in the web page 700 illustrated in Fig. 8.

Participants may play the game purely for fun, or
10 the sponsor may provide prizes for the highest scores. Such presentations would also be useful for promotional purposes, and, as mentioned above, could be coordinated with other advertising. The game may also be presented to participants for educational or training purposes.
15 Depending upon the server used, it may be possible to provide numerous independent sessions in which different groups of participants compete. Preferably, an entire library of audiovisual clips could be stored on the server, a (preferably randomized) selection of which
20 would be presented in each session, to make it difficult to memorize a series of correct answers.

The software and hardware needed for this system may be satisfied at the client (participant) side by typical IBM-compatible personal computers (client PCs), but other
25 computers may also be suitable if compatible software is used. Each client PC may preferably be configured with the Windows95® or Windows98® operating system and the necessary networking software to allow it to run on a TCP/IP based network, such as the Internet. Intel
30 PENTIUM®-based client PCs having a CPU speed of at least 166 MHz are recommended, along with a minimum of 32MB of RAM and a 28.8KB modem. These requirements could be modified, depending upon the audiovisual clip lengths,

resolutions, and download times that are desirable or that can be tolerated. Each client PC must be able to establish a connection to a web page hosted at a synchronization-enabled web site, such as one utilizing
5 the RTIME software described above. An SGI (Silicon Graphics, Inc.) O200 workstation is representative of the desired processing power for the web server.

Once the inventive game is understood, it will be recognized by those of skill in the art that many
10 variations within the scope and spirit of the invention are possible. For example, the audiovisual clips (i.e., clips comprising audio and/or video content) may be either live recordings from amateur or professional sports events, or cartoon or computer-generated
15 simulations of plays in real or simulated sport events. The sports trivia game may also be played on a local network of computers with one server (without excluding the possibility of configuration having more than one server) and multiple clients. Even a single computer or
20 video game device may be configured to play the game, if each player is provided with a data entry device such as a joystick or button pad. (A single keyboard could be used for a limited number of players by assigning portions of the keyboard to individual players.) In
25 these configurations, no synchronizing software is required. Instead, the web server transmits the audiovisual clips (e.g., recordings of plays from live sporting events, or animations of similar subject matter) to participating computers on the local network at the
30 same time or nearly the same time, possibly using a broadcast-like protocol, or the video game or stand-alone computer simply displays the clip on a single screen or a plurality of display screens. The game then proceeds win

the manner described above, with players entering answers either via their local client computer or via the input device attached to the video game or the single computing system.

5 In still another variation of the present invention, the questions and/or audiovisual clips may be provided to the game players through a medium other than the computer network, such as through a television broadcast, and the players can then submit their answers via the computer
10 network or any other suitable means.

Because of the variations that are possible within the spirit of the invention, the scope of the invention should be determined by reference to the claims below and their full range of equivalents, in accordance with
15 applicable laws.

WHAT IS CLAIMED IS:

1. A method of using a distributed network that provides electronic data communication to a plurality of remote terminals, the method comprising:
 - transmitting an audiovisual clip and a question
 - 5 related to audiovisual clip to each of a plurality of terminals;
 - coordinating a time of playing of the audiovisual clip at the plurality of terminals;
 - receiving, from at least some of the plurality of
 - 10 terminals, a response to the question and data indicative of time elapsed prior to the response being entered;
 - analyzing the responses and data in accordance with predetermined correctness and speed criteria; and
 - transmitting, to at least some of the plurality of
 - 15 terminals, results of the analysis.
2. The method of claim 1, wherein the step of transmitting the audiovisual clip comprises transmitting an audiovisual clip recording of a play that occurred in a sporting event.
3. The method of claim 2, wherein the step of coordinating playing the audiovisual clip comprises coordinating a display of the question and a multiple choice list of possible answers.
4. The method of claim 2, wherein the step of coordinating playing the audiovisual clip comprises, at each terminal, disabling controls providing for redisplay of the audiovisual clip until playback of the audiovisual
- 5 clip has completed.

5. The method of claim 2, and further comprising a step of logging in participants at the terminals with an identification of their own choosing.

6. The method of claim 5, wherein one of the participants is a host participant, further comprising a step of receiving coordination time data from the host participant's terminal, and wherein the step of playing
5 the audiovisual clip at a coordinate time comprises coordinating a playback time at each of the plurality of terminals in accordance with the received coordination time data.

7. The method of claim 6, wherein there are a plurality of host participants, and wherein:

the step of receiving coordination time data comprises a step of receiving coordination time data and
5 session identification data from each of the plurality of host participants; and

the step of logging in participants includes logging a participant into a session identified by a host participant;

10 and wherein the analyzing and result transmitting steps are performed independently for each session.

8. The method of claim 1 wherein the step of coordinating a time comprises coordinating the time in accordance with a preselected time.

9. The method of claim 1 wherein the step of coordinating a time comprises coordinating the time in

accordance with a message transmitted via a broadcast medium:

10. The method of claim 1 repeated a plurality of times, wherein a predetermined delay time is interposed between successive repetitions and wherein the audiovisual clip and question in each repetition is different, and further
5 comprising steps of analyzing an aggregation of results of the repetitions in accordance with correctness and speed criteria, and transmitting, to each of the terminals, results of the analysis of the aggregation of results of the repetitions.

11. A method of using a distributed network, the network providing electronic data communication with variable time delays to remote terminals; the method comprising:
providing a web site accessible to the remote
5 terminals;
logging in a first one of the remote terminals to the web site to initiate a playing session;
setting a global start time for the playing session;
logging into the playing session at least one other
10 of the remote terminals;
transmitting synchronizing pulses to each logged-in terminal;
transmitting an audiovisual clip to each of the logged-in terminals;
15 transmitting a question pertaining to the audiovisual clip to each of the logged-in terminals;
receiving answers transmitted to the web site from the logged-in terminals; and

transmitting, to the logged-in terminals, an
20 indication of those terminals at which a correct answer
was most rapidly provided.

12. A method of using a distributed network, the network
providing electronic data communication with variable
time delays to remote terminals; the method comprising:
providing a web site accessible via the distributed
5 network to the remote terminals;
selecting a group of remote terminals for a playing
session;
transmitting via the distributed network, from the
web site to each of the terminals selected for the
10 playing session, an audiovisual clip, a question relating
to the audiovisual clip, and a synchronizing signal so
that the audiovisual clip and the question are each
displayed at each of the terminals selected for the
playing session at synchronized times;
15 receiving, from at least one of the remote terminals
selected for the playing session, answers to the question
relating to the audiovisual clip and, in conjunction
therewith, indications of elapsed time, relative to the
synchronized time, at which answers were entered into the
20 remote terminals;
analyzing the received answers and their associated
indications of elapsed time in accordance with
correctness and timeliness criteria; and
transmitting an indication of the correctness and
25 timeliness of selected ones of the received answers to
the terminals selected for the playing session.

13. A method of using a distributed network, the network providing data communication with variable time delays to remote terminals; the method comprising:

5 establishing a consistent synchronized time base at a plurality of remote terminals, the plurality of remote terminals thereby constituting a session;

distributing, via the distributed network to the remote terminals in the session, an audiovisual clip and a question related to the audiovisual clip that is
10 displayed on the terminals in the session in accordance with the synchronized time base;

receiving, via the distributed network from the terminals in the session, a set of responses to the question and corresponding indications of elapsed time
15 for response entry relative to the synchronized time base;

analyzing a set of responses and corresponding indications of elapsed time in accordance with preselected criteria including timeliness criteria; and
20 distributing, via the distributed network, results of the analyzing step.

14. The method of claim 13, wherein the distributing of an audiovisual clip comprises distributing a video recording of a refereed sporting event.

15. The method of claim 14, wherein the distributing of an audiovisual clip comprises distributing a video recording of a play in a refereed sporting event up to, but not including, a call of a referee.

16. The method of claim 15, wherein the distributing of a question relating to the audiovisual clip comprises the

distributing of a question relating to a call of the play in the 'video recording.

17. The method of claim 16, wherein the receiving step comprises receiving one answer and a corresponding indication of elapsed time from each of a plurality of terminals in the session, and the analyzing step
5 comprises ranking of correct answers received in order of elapsed time.

18. A method of playing a computer game, comprising:
asking a plurality of players a question;
receiving answers to the question from the plurality
of players; and
5 scoring each of the players in accordance with
criteria relating to both speed and correctness of the
received answers.

19. The method of claim 18, further comprising the step of presenting an audiovisual clip representing a play of a sporting event to the plurality of players, wherein the
5 asking step includes asking a question relating to the play represented in the clip.

20. The method of claim 19, wherein all of the steps are performed by a single, stand-alone device selected from the group consisting of computers and video games.

21. The method of claim 19, wherein all of the steps are performed by a server computer or a computer network.

22. The method of claim 19, wherein the presenting step comprises presenting a recording of a portion of a live sporting event.

23. The method of claim 19, wherein the presenting step comprises presenting an animation representing a play of a sporting event.

FIG. 1

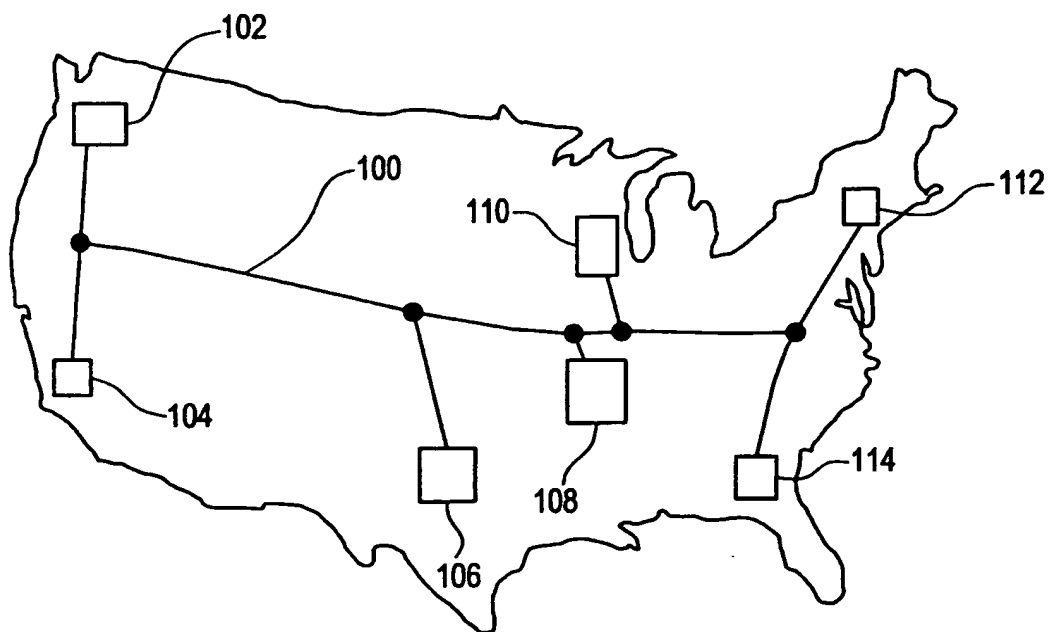


FIG. 2

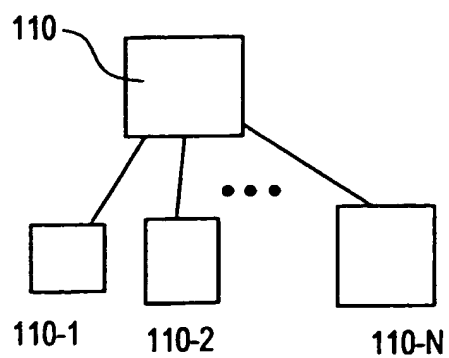


FIG. 3

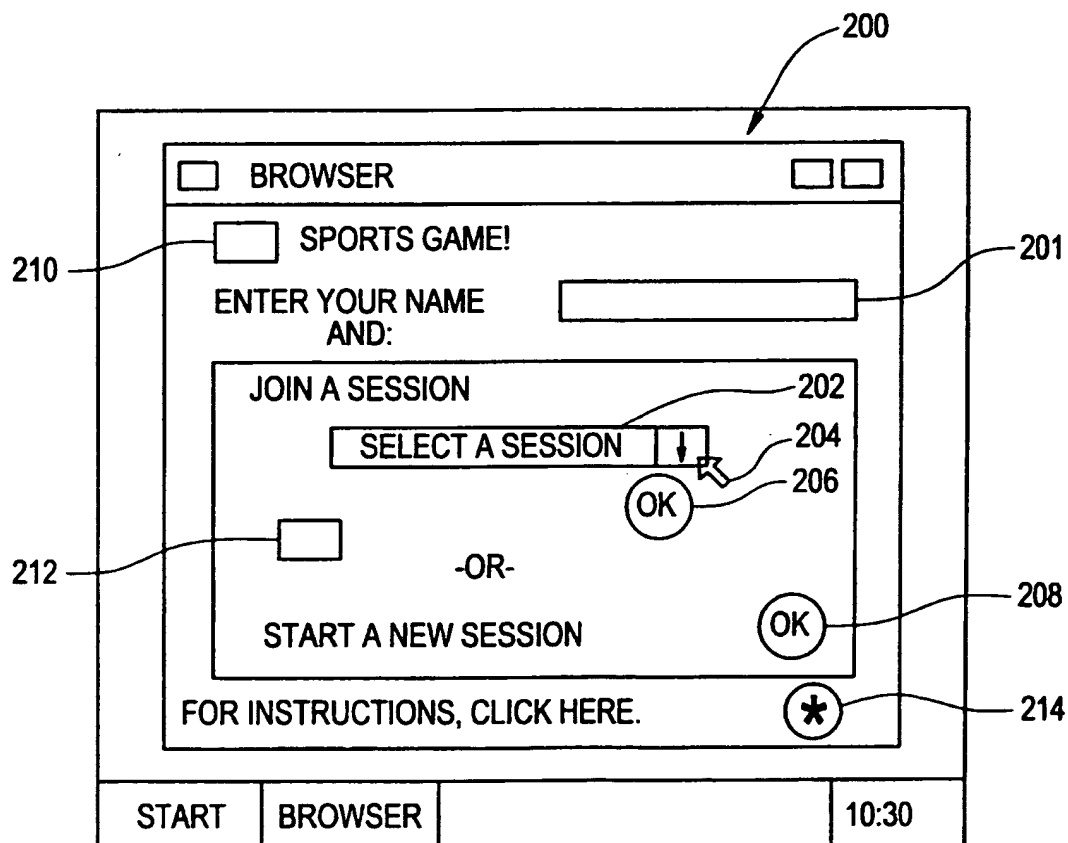


FIG. 4

300

☐ BROWSER

SPORTS GAME!

ENTER SESSION NAME

302

304

SELECT GLOBAL START TIME

minutes from now

-OR-

306

310

AM

PM

312

314

316

GO BACK

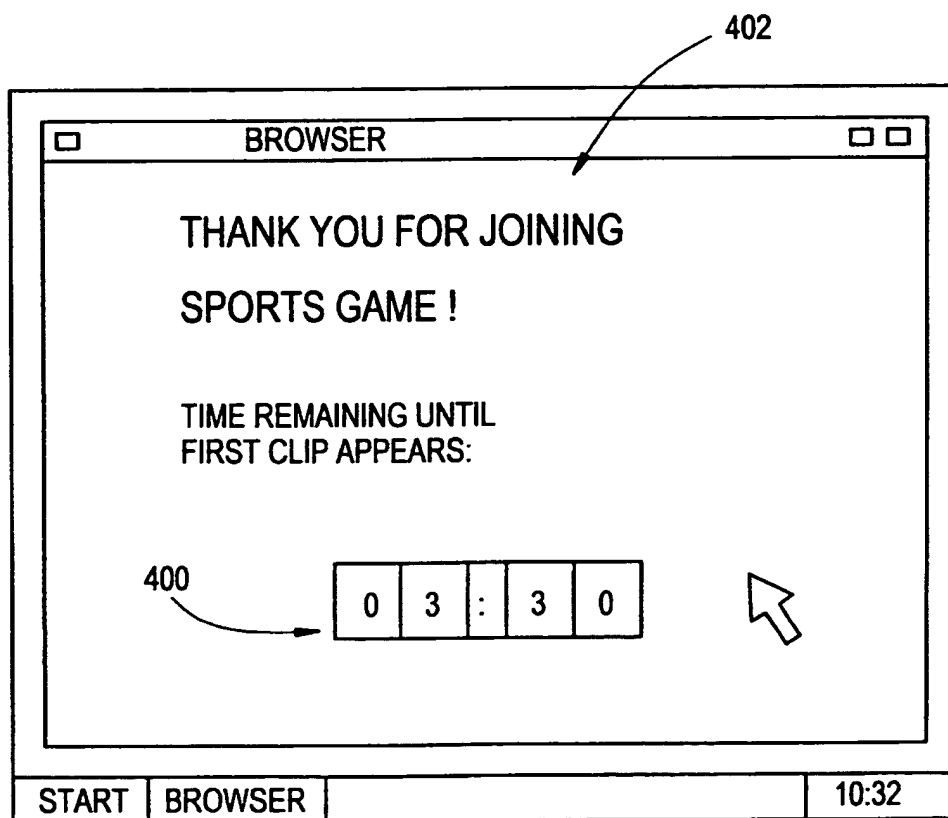
308

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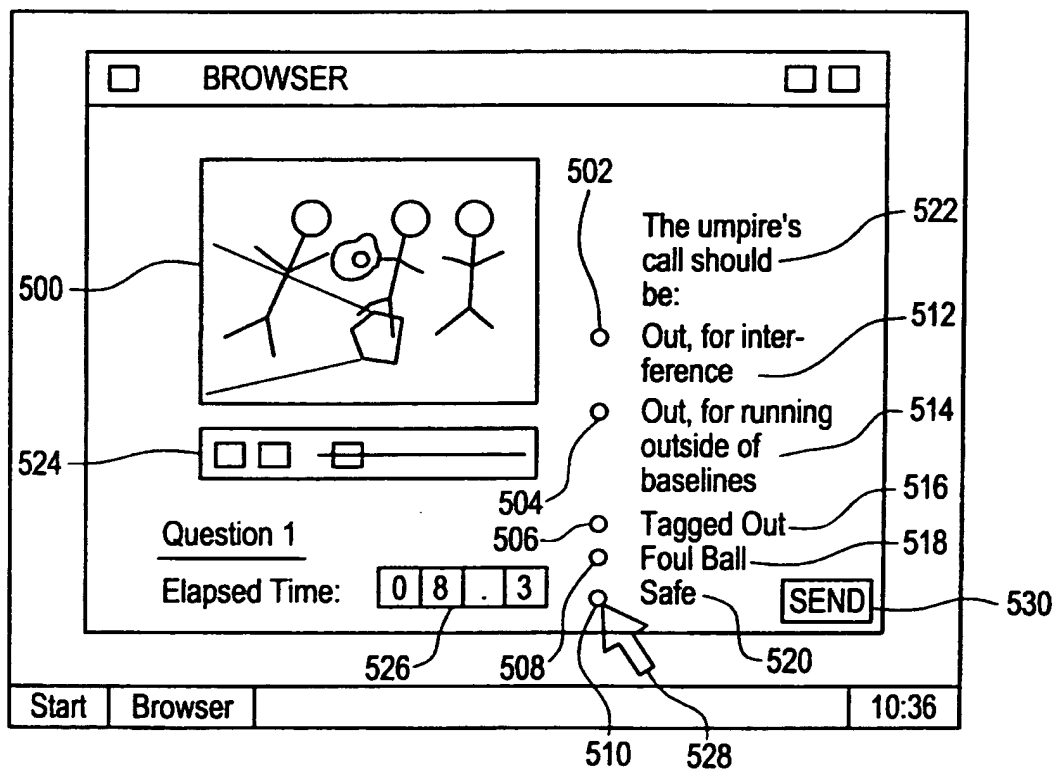
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FIG. 5



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FIG. 6



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FIG. 7

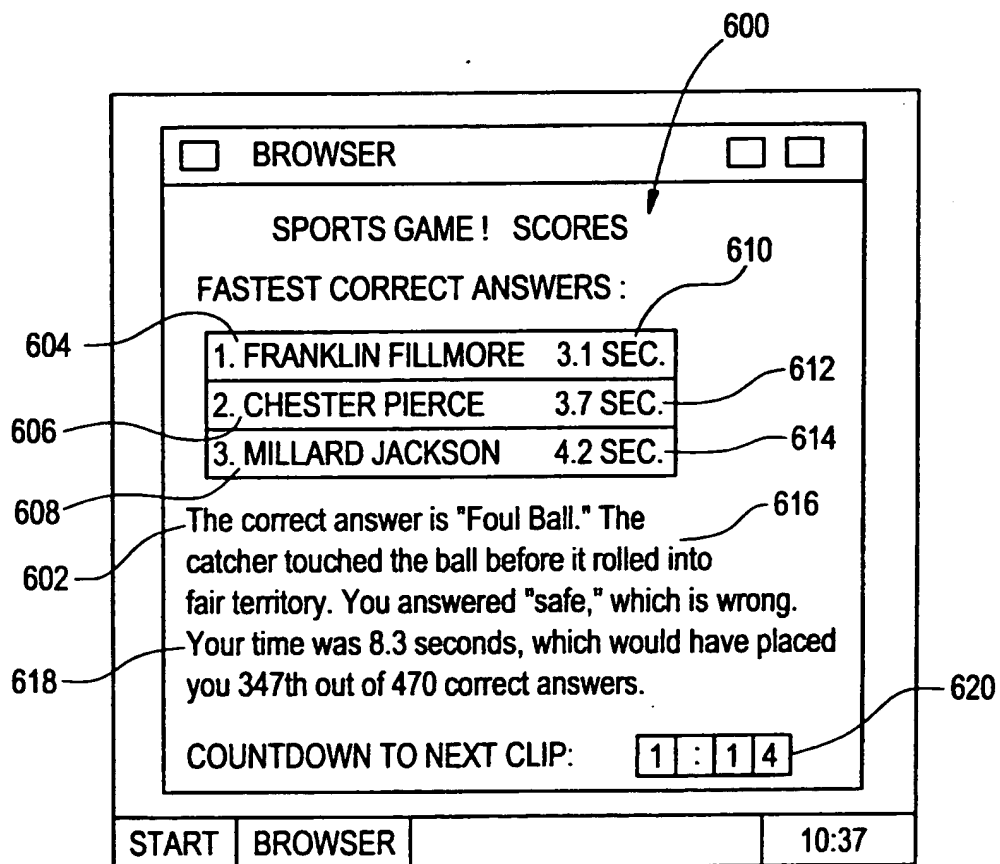
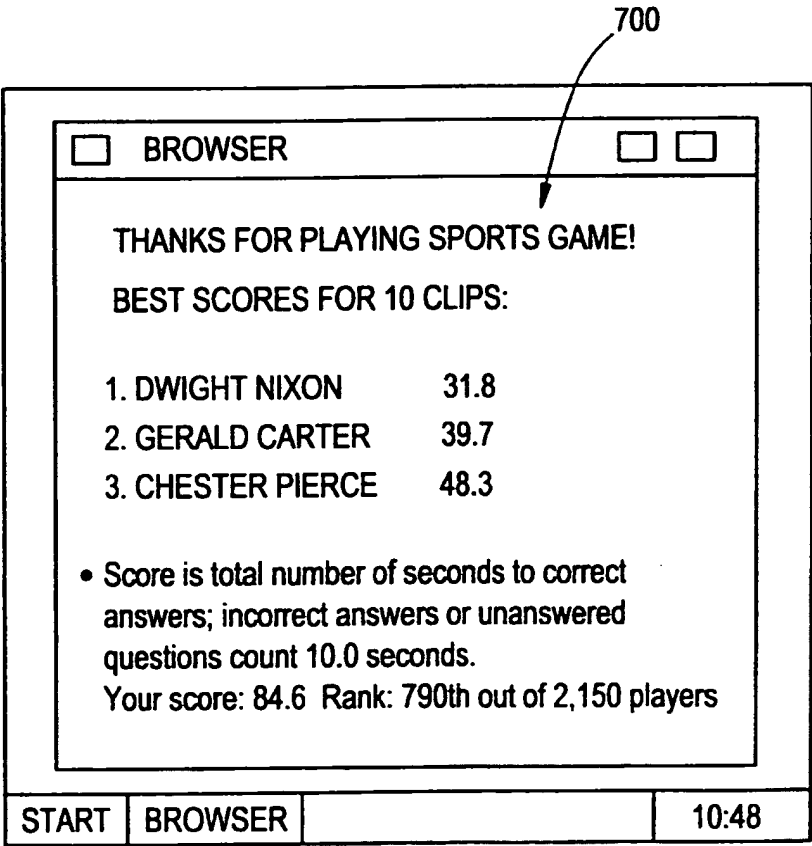


FIG. 8



INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/17465

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A63F 9/24

US CL : 463/40

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 463/40, 41, 42, 43, 31, 35, 17, 25

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,697,844 A (<i>VON KOHORN</i>) 16 December 1997, See col. 3, lines 8-38; col. 13, lines 56-60; col. 76, lines 17-22; col. 73, lines 31-32; col. 93, lines 14-47; col. 100, lines 4-8; col. 120, lines 20-41	1-23

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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"O" documents referring to an oral disclosure, use, exhibition or other means	
"P" document published prior to the international filing date but later than the priority date claimed	

Date of the actual completion of the international search

07 AUGUST 2000

Date of mailing of the international search report

24 AUG 2000

Name and mailing address of the ISA/US
Commissioner of Patents and Trademarks
Box PCT
Washington, D.C. 20231

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